ABSTRACT

Title of Dissertation:	STRATEGIC PARTNERSHIPS IN TRANSFORMATIONAL OUTSOURCING AS A DISTINCTIVE SOURCE OF IT VALUE: A SOCIAL CAPTAL PERSPECTIVE
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Firms increasingly acquire needed information technology (IT) products and services from external sources through the formation of partnerships. In spite of the ubiquity of IT outsourcing practice in today's organizations however, theoretical understanding of IT partnerships in outsourcing is limited. Extant research has largely focused on the *economic* or *strategic* aspects of IT outsourcing, using transaction cost economics (TCE) and the resource-based view (RBV) as dominant theoretical frameworks. This dissertation adopts a *social* perspective to examine the IT outsourcing phenomenon. It focuses on IT partnerships in transformational outsourcing relationships that are interorganizational engagements formed to rapidly and substantially improve performance at the organizational level. By synthesizing the knowledge based view of the firm with the concept of social capital, I attempt to explain how IT outsourcing relationships generate value for organizations. I argue that IT outsourcing partnerships constitute a form of social capital for the firm that chooses to outsource, that facilitates knowledge exchange and transfer. The increased knowledge stock

as a result of knowledge exchange and transfer, in turn, forms the foundation for IT value, which is manifested as success in business operations and IT-enabled innovation. To empirically test the theoretical model, I surveyed 151 client firms and 79 outsourcing service providers in China. Results suggest that both social capital and knowledge acquisition are crucial to the success of IT outsourcing. Evidence from the survey responses also indicates that different aspects of social capital play different roles in the process of IT value creation. Specifically, the structural dimension (*partner resource endowment*) and the cognitive dimension of social capital (*shared vision* and *shared cognition*) have a strong impact on *knowledge acquisition*; whereas the relational dimensions of social capital (*social interaction* and *trust*) has strong direct effects on successful outcomes of IT outsourcing. This study presented evidence that helps further our understanding of the IT outsourcing phenomenon through an alternative theoretical lens, and emphasizes the value other than immediate cost-related benefits that organizations may garner through IT outsourcing partnerships.

STRATEGIC IT PARTNERSHIPS IN TRANSFORMATIONAL OUTSOURCING AS A DISTINCTIVE SOURCE OF IT VALUE: A SOCIAL CAPITAL PERSPECTIVE

by

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Outsourcing can be more than a tool for cutting costs and improving organizational focus. Increasingly, it is a means of acquiring new capabilities and bringing about fundamental strategic and structural change[1].

—Jane C. Linder

CHAPTER 1: INTRODUCTION

Outsourcing is not a new phenomenon in the contemporary business environment; indeed, it has been extensively used to cut cost and improve strategic focus. Today, firms continue to seek help from outside to facilitate rapid organizational change, to launch new strategies, and to reshape organizational boundaries. To achieve these goals, firms are forming partnerships with other companies to rapidly and substantially improve performance at the organizational level, a phenomenon referred to as *transformational outsourcing* (Linder 2004).

Information technology is an area in which outsourcing has been widely practiced. The pervasive impact of business computing has made information technologies an indispensable part of daily operations and the key to competitive success. However, in today's fast-paced business environment, it is impossible for any single organization to understand, develop, and implement every information technology needed. Therefore, firms actively seek external IT providers to obtain needed IT services at lower costs and to achieve other goals such as better IT performance, improved services, and innovation. This phenomenon is referred to as IT outsourcing, which can be defined as "the delegation, through a contractual agreement, of all or any part of the technical resources, the human resource, and the management responsibilities associated with providing IT services to an external vendor" (Clark et al. 1995). IT outsourcing has reshaped corporate America since

[1] Linder, J. C. (2004), "Transformational Outsourcing", *MIT Sloan Management Review*, 45(2), Winter, pp. 52-58

the landmark IT outsourcing decision by Eastman Kodak more than a decade ago. Due to the high uncertainty involved in the information technology domain and the increased scale of IT functions that are outsourced, contractual agreements alone are no longer sufficient to manage the outsourcing relationships. Especially when the outsourced IT functions have substantial impact at the enterprise level (such as ERP or CRM), it requires a shift in the managerial mindset of chief information officers (CIOs)—from a focus on effective management and maintenance of contracts to proactive formation of partnerships and alliances. This dissertation specifically focuses on IT partnerships and transformational outsourcing practices.

1.1 IT OUTSOURCING FACTS

The IT outsourcing industry has experienced tremendous growth in the past ten years. According to market research by IDC, spending on IT outsourcing reached $56 billion in 2000 and is expected to top $100 billion by 2005. Today, a well-established outsourcing industry is serving a growing variety of needs. Firms outsource a wide variety of IT activities in today's globalized economy, to access infrastructure technologies, improve business applications, change business processes, or even achieve business transformations. "While IT might be leading the charge, it's outsourcing that's providing the fuel." said Frank Casale, CEO of the Outsourcing Institute, in the introduction of the IT Index prepared by the Outsourcing Institute (Casale 2001).

Recent industry reports indicate a shift in orientation of IT outsourcing from transaction-driven to transformation-driven. The IT Index prepared by the Outsourcing Institute shows that although cost reduction remains the major motive for outsourcing, it is closely followed by goals such as "improving company focus" and "resources not available

internally". Such findings are consistent with an IDC report, which found "mounting evidence that companies have turned to outsourcing for more strategic reasons, including keeping up with cutting-edge technology, building partnerships, creating value for the organization and its customers, and broadening infrastructure and operations reach". The Outsourcing Institute's Casale has acknowledged that more and more companies are viewing outsourcing "not just as a tactical, reactive thing, but as a strategic and proactive move" in general, but he believes that "the number of companies that truly understand the strategic value of outsourcing is still nowhere near where it should be" (Casale 2001).

A recent study by Forrester revealed that the most important reason for IT outsourcing is to gain strategic business advantage and that IT improvement is the leading outcome of IT outsourcing practices[2]. This finding contrasts the previous emphasis on cost reduction. The difference in findings may be explained by a mismatch—many firms are too focused on cost-related concerns when they make IT outsourcing decisions, even though later they expect outcomes beyond cost-savings, such as strategic business improvement, improved services, and focus on core competencies. Such a mismatch makes it hard for firms to achieve the goals that are not specified at the outset of IT outsourcing. In addition, the extensive focus on cost has hindered a firm's ability to innovate. Therefore, anecdotal evidence calls for a paradigm shift of IT outsourcing away from cost-related concerns.

1.2 MOTIVATION AND RESEARCH QUESTIONS

Although there is a rich body of research on IT outsourcing, much of it has viewed IT outsourcing as a cost-reduction vehicle and examined the phenomenon through a *transaction-oriented* lens. Recent evidence and the transformational outsourcing trend, however, suggest an emerging relational orientation that focuses on building a successful

[2] http://webevents.broadcast.com/cmp/oracle/100103

relationship between the client firm and the provider of IT services (Lee 2001; Lee et al. 2003). This emerging body of research shows that IT outsourcing is moving toward a partnership orientation and away from a contract-orientation (Lee et al. 2003). Recent academic research also highlights knowledge sharing, organizational capability, and partnership quality as factors that significantly influence IT outsourcing success (Lee 2001). For example, in a recent Oracle-sponsored online forum on IT outsourcing, practitioners presented evidence that IT outsourcing has entered a new stage of its lifecycle[3], in which the focus has shifted from low-cost hardware and low-cost IT professionals to software process and automation services, knowledge transfer, and innovation (Oracle Outsourcing CIO, Timothy Chou and Forrester Senior Analyst, Christine Feurrusi Ross).

Research on knowledge and learning in IT outsourcing relationships, however, has been scant to date. This dissertation is motivated by the growing importance of IT outsourcing, the somewhat conflicting perspectives on what IT outsourcing means to the firm, and the theoretical gaps between the existing literature on IT outsourcing and the empirical reality. Particularly, it seeks to explore the dynamics of IT partnerships in outsourcing practices and the impact of transformational IT outsourcing on the IT value of a firm. This dissertation attempts to answer the following questions:

(1) Does transformational outsourcing create value that goes beyond immediate cost-related benefits?

(2) If so, through what mechanisms does such value get created?

1.3 DELINEATION OF PHENOMENON OF INTEREST

The focus of my theorizing and empirical analysis is on strategic IT partnerships established through the sourcing decision of acquiring IT services from an external entity,

[3] http://webevents.broadcast.com/cmp/oracle/100103

who is considered as a strategic partner. Partnership is defined as an interorganizational relationship that reflects a long-term commitment, a sense of mutual cooperation, shared risk and benefits, and other qualities consistent with concepts and theories of participatory decision-making(Henderson 1990; Lee 2001) . The partnership concept rests on the notion that performance can be significantly improved through joint, mutually dependent action (Henderson 1990).

1.3.1 Strategic IT Partnerships

Based on this definition, in the present study, a strategic IT partnership is defined as an interorganizational relationship formed between two firms through information technology to achieve shared goals of the participants. There are two types of strategic IT partnerships.

The first type of IT partnership involves a client with certain needs for IT functions from external sources and a vendor that provides such services in exchange for a service fee. For instance, IT outsourcing or consulting is an example of this type of strategic IT partnership. Although IT outsourcing has been a cost-effective way of accessing specialized computing power or system development skill, recent trends have shown that increasing attention has been paid to building a successful relationship between the client firm and the provider of IT outsourcing services (Lee 2001). In this dissertation, I primarily focus on two types of IT outsourcing relationships that may have significant impact on business goals and operations: alignment and alliance (Nam et al. 1996). Examples of the alignment relationship are IS consulting or technical supervision for IT planning and design, and system conversion. In this type of IT outsourcing relationship, even if the vendor is not significantly involved in the client's IT operation, it nonetheless has the potential to have a more strategic

impact on the client organization (Nam et al. 1996). IS planning, new product design and new systems design to help new market entry are some examples of the alliance relationship. In this type of relationship, the vendor takes over the internal IS operations and is responsible for highly strategic IT functions (Nam et al. 1996).

The second type of strategic IT partnership relates to the partnership between two IT service providers. IT firms with knowledge and expertise in different domains form partnerships to benefit from synergy when providing IT services to clients. For example, IT consulting firms such as Accenture and BearingPoint are teaming up with IT providers (such as IBM, Siebel Systems, Cisco Systems, etc) with expertise in networking, business solution, software applications, systems design, and system integration, to better serve the clients' business needs (Goolsby 2003). In addition, a recent article in eWeek revealed that large firms such as General Motors are initiating the "third wave" of IT outsourcing by outsourcing the IT functions to multiple IT service providers (Gibson 2003). Therefore, these IT service providers will have to partner with their competing rivals to get the job done. The collaboration among the IT service providers melds the interests of different IT providers and business objectives of the client firm, thus ensuring the success of the partnership.

In this dissertation, I will focus on the first type of strategic IT partnership only, i.e. IT partnerships between a non-IT firm and an external vendor.

1.3.2 An Example of a Strategic IT Partnership

An example of strategic IT partnership is the USAA-IBM partnership for managing an image project (Lasher et al. 1991).

United Services Automobile Association (USAA) provides a broad range of financial services and products (investment, security, retirement, travel, and purchasing) to American

military officers, former officers, and their dependents. In the 1980s, USAA partnered with IBM to roll out an image project for its property and casualty insurance business. The daily incoming and outgoing documents were indexed on the IBM 3090 mainframes and then were scanned to create a digital electronic image. The image documents could be accessed from anywhere in the company for processing with the existing business applications.

After several unsuccessful attempts to study image and other emerging technologies, the executives at USAA realized that they lacked the knowledge that would help them realize their paperless office vision. So they turned to IBM for help. Since IBM had no complete off-the-shelf image product that met USAA's requirements, buying from IBM was not an option. Therefore, USAA and IBM structured partnership arrangements to orchestrate the design, planning, management, and implementation of the image-processing project. USAA provided ample resources to the image partnership. They brought the paperless office vision, evidence that they were successfully pursuing it, and a willingness to commit additional resources and commitment at all levels. IBM provided a complementary set of assets to the project. Several characteristics of IBM proved to be the major strengths in this partnership: its financial viability, quality field service, long-term relationship with and knowledge about USAA. Through its Federal Systems Division, IBM brought systems integration skills to put together a solution from a myriad of existing pieces drawn from IBM's various product divisions, and if necessary, from outside of IBM.

The partnership between USAA and IBM is an exemplary cooperative relationship between a technology supplier and its customer that led to the creation of a new emerging technology product. The cooperation helped both firms achieve key organizational objectives and build competitive advantage in their respective industries. The partnership

allowed the two firms to share risk, bring together complementary resources and knowledge, and create a basis for a long-term relationship of mutual benefit.

Several additional examples of strategic IT partnership are summarized in Table 1.

1.4 RESEARCH GOALS AND CONTRIBUTIONS

Notwithstanding the fast growth of the IT outsourcing industry, several questions remain unanswered about the IT outsourcing phenomenon, especially when the management of the outsourcing relationship goes beyond contract maintenance. This dissertation is an attempt to bridge a widening gap between the research literature and the reality. To this end, I believe it is useful to examine the IT outsourcing phenomenon from a social capital perspective. The goal of this dissertation is to explore the knowledge-related aspects of IT outsourcing practice. Specifically, I seek to find out whether learning from an IT partner in an outsourcing relationship creates value for the firm.

The contribution of this study is mainly twofold. First, the proposed theoretical model emphasizes the role of knowledge in value creation, and argues that knowledge and learning are the underlying mechanisms of the value creation process. Anecdotal evidence has indicated that as the IT outsourcing practice becomes increasingly strategic in orientation, firms should no longer focus on getting the job done at less cost. Instead, smart firms are intentionally seeking partners with strong domain expertise and willingness to share. I believe that the previous belief that knowledge transfer does not exist in the IT outsourcing practice no longer holds in today's reality. Instead, the questions have become: How does knowledge transfer happen in the partnering relationships in the IT context? What are the consequences of knowledge transfer? The proposed study seeks to explore these unanswered questions.

Table 1: Examples of Strategic IT Partnerships

Focal Firm	Strategic Partner	Partnership Description
MetLife	BearingPoint	In 2000, MetLife, the largest life insurer, formed a partnership with BearingPoint to develop an integrated e-business service portal that would provide a single point of access and allow individual customers to perform self-service online. BearingPoint and MetLife worked together to analyze current enrollment process and identify opportunities for leveraging technology across various product lines. BearingPoint brought industry-specific knowledge to the partnership, in terms of how to leverage technology in competitions with both traditional and emerging technology-enabled competitors. In addition, BearingPoint not only provided the point solution to the business problem that MetLife wanted to address, but also delivered architectural and knowledge frameworks that can be reused and redeployed in MetLife's future endeavors. This partnership enabled MetLife to drastically decrease the product cycle time and introduce new services faster to market. This online service portal resulted in growth in utilization of the service and increased satisfaction. (http://www.bearingpoint.com/clients/case_studies/metlife.html)
Siam Cement Group (Thailand)	Accenture	In February 2001, the Siam Cement Group outsourced is IT services by forming IT One, a 50-50 joint venture between Siam Cement and Accenture. IT One is a cost-effective way of tying information technology to business needs at Siam Cement, but its mission goes far beyond efficiency. The joint venture is also Siam Cement's vehicle for creating world-class capabilities in customer relationship management, supply chain management and other vital applications. (http://www.accenture.com: Accenture Outsourcing Cases)
Sony Computer Entertainment Europe	Accenture	Sony Computer Entertainment (SCE) was preparing its launch of the latest version of the games console, PlayStation2 (PS2). Europe is the world's largest market for games consoles and SCE wanted an online, direct-to-consumer presence in Europe to coincide with a Fall 2000 launch. But SCE Europe only had scattered informational websites with no transactional e-commerce capabilities. SCE Europe engaged Accenture to design and build the infrastructure to provide B2C capabilities in time for the PS2 launch within a short time frame of eight months. The solution was to create PlayStation.com (Europe), an entirely new online business entity, servicing consumers in 16 countries with 15 currencies and 11 languages. … Accenture's technology skills were used to design and build the Internet engine, including the design and deployment of SAP as the backbone architecture. Supply chain management expertise ensured home delivery and an efficient order-processing machine. Human performance specialists trained, communicated and designed the organizational structure for the entire project. (http://www.accenture.com: Accenture Outsourcing Cases)

Second, this dissertation uses an alternative theoretical lens to examine IT outsourcing relationships. Various theoretical frameworks, such as transaction cost economics, resource based view, agency theory and social exchange theory, have been applied to prior studies on IT outsourcing. These theories have helped us understand *why* firms outsource and *what* they outsource in the domain of IT, but prior studies have failed to establish a connection between IT outsourcing practice and organizational value, and failed to explain *why* such causal relationship exists. This dissertation is among one of the first attempts to fill this gap by applying social capital theory to try to answer the *why* question. I believe that social capital theory will help not only argue for a causal relationship between the strategic IT partnership and value creation, but also explore the enabling conditions for and dynamics of this relationship.

The proposed research model also has managerial implications. The propositions show that IT outsourcing should no longer be regarded as a mere tactical mechanism for realizing cost related benefits. Rather, it would be fruitful for managers to view IT outsourcing as a potential strategic vehicle for gaining access to knowledge and capabilities from external sources in a changing environment that requires both focus and flexibility. Further, the model highlights different factors that influence the extent of knowledge transfer and knowledge exploitation that occurs in IT outsourcing. To the extent that many of these factors are under the direct control of executives and managers, the model provides guidance on actions and interventions that can help in extracting maximal value from an IT outsourcing partnership.

The remainder of this dissertation proceeds as follows. I review the existing research literature on IT outsourcing and identify theoretical gaps in Chapter 2. In Chapter 3, I

present the overarching theoretical framework and review pertinent literature thatinform s the underlying logical reasoning. Building upon the theoretical foundation, I present the research model and discuss the propositions of the proposed study in Chapter 4. Chapter 5 is a description of the methodology I used to conduct an empirical test of the research model. In Chapter 6, I summarize the results of data analysis and discuss the implications of the results. In Chapter 7, I discuss the limitations and contributions of this study, and discuss future research directions.

CHAPTER 2: LITERATURE REVIEW: IT OUTSOURCING

Although the focus of this dissertation is on the transformational IT outsourcing practice, it is useful to review the general IT outsourcing literature. This literature review chapter starts with a summary of IT outsourcing issues that have been studied in prior research. Prior literature on IT outsourcing is categorized into three broad groups based on their theoretical perspectives: economic, strategic, and social. For each of these three groups, prior studies are discussed to show how different theories have been applied to the IT outsourcing context. I then critically evaluate prior literature and point out some theoretical gaps that exist between theory and reality.

The IT outsourcing phenomenon has attracted the attention of academia since the early 1990s. Research on IT outsourcing to date has tapped into various issues related to IT outsourcing (Lee et al. 2002; Lee et al. 2003) such as: make-or-buy decision (Baden-Fuller et al. 2000; Clark et al. 1995; DiRomualdo et al. 1998; Gover et al. 1994; Hu et al. 1997; Loh et al. 1992a; McFarlan et al. 1995; Willcocks et al. 1995b), the Kodak effect (Hu et al. 1997; Loh et al. 1992a), motivations (Ang et al. 2002; Apte et al. 1997; Lacity et al. 1998; McFarlan et al. 1995), scope (Willcocks et al. 1995a), performance (Saunders et al. 1997; Willcocks et al. 1998), insourcing vs. outsourcing (Hays 1998; Hirschheim et al. 2002; Lacity et al. 1995a; Reponen 1993), contracts (DiRomualdo et al. 1998; Saunders et al. 1997), and partnership (Klepper 1995; Pennington et al. 1997; Saunders et al. 1997; Willcocks et al. 1995a; Willcocks et al. 1998). An extensive list of IT outsourcing studies is presented in Appendix 1, highlighting the IT outsourcing issues that each study has covered.

As evident in the literature review, a wide range of theoretical perspectives have been utilized to study the IT outsourcing phenomenon. Numerous as they are, these theoretical

perspectives fall under three broad categories: economic view, strategic management view, and social view (Lee et al. 2002; Lee et al. 2003). Major theories that have been applied to the IT outsourcing studies are summarized in Table 2. In the following sections, I will first summarize IT outsourcing issues that have been discussed in the extant literature, followed by a brief overview of the major theoretical perspectives in prior literature on IT outsourcing, i.e., the economic, strategic and social views, and a discussion of how each theoretical perspective can be used to address various IT outsourcing issues (see Table 3). Then, based on the literature review, I will discuss the theoretical gaps between the emerging trends and the existing academic research on IT outsourcing.

Table 2: Summary of Theoretical Perspectives in IT Outsourcing Research

Theoretical Perspective	Theoretical Argument	Studies
Transaction Cost Economics	Firms should consider three attributes of a market exchange—asset specificity, behavioral uncertainty, and transaction frequency—when making the make-or-buy decision. These attributes indicate situations in which opportunities exist for one or both parties involved in a market exchange to behave opportunistically. When opportunism arises, the costs of managing the exchange (transaction costs) increase and the performance of the exchange suffers. IT services can be provided by an external vendor if the costs of providing such services in-house exceed the transaction costs that might incur within the market exchange.	(Ang et al. 1998; Barney 1999; Clemons et al. 1993; Dibbeern et al. 2002; Finlay et al. 1999; Grover et al. 1996; Jurison 2002; Lacity et al. 1995b; Lonsdale 2001; Murray et al. 1999; Ngwenyama et al. 1999; Poppo et al. 2002a; Poppo et al. 1998)
Resource-Based View	A firm is viewed as a distinctive bundle of resources, which can generate competitive advantage for the firm if they are rare, valuable, irreplaceable, and inimitable. A firm will use market competence as long as it can generate capabilities using internal resources. However, if deficits in resources and capabilities are diagnosed on the firm's strategic orientation, then market becomes an option to fill these gaps. Firms may need IT outsourcing if it lacks technical staff, advanced technology, or technical capabilities internally.	(Baden-Fuller et al. 2000; Barney 1999; Dibbeern et al. 2002; Grover et al. 1996; Grover et al. 1994b; Insinga et al. 2000; Poppo et al. 1998; Quinn 2000; Venkatraman 1997)
Agency Theory	The principal delegates the work to the agent who has specialty and performs the work. Agency problem arises when two parties have different goals and it is difficult or expensive to for the principal to measure what the agent is doing. The focus of agency theory is on developing the most efficient contract that governs the principal-agent relationship, assuming self-interested people and corporations. One of the most important and most difficult tasks in IT outsourcing is to writing and managing the contract that would reduce the risk of agency problem at the lowest cost level.	(Choudhury et al. 2003; Logan 2000; Poppo et al. 1998)
Power and Political Theory	Three important aspects within any relationship are interests, conflicts, and power. The interests may be reflected through the formation of various interest groups (political coalitions). If conflicts of interest arise, then power and politics serve as the medium for ultimate conflict resolution. Power is the potential of a party to influence the behavior of another in a certain manner. Politics is the manner through which power is exercised.	(Dibbeern et al. 2002; Lee et al. 1999)
Institutional Theory	Organizational behavior can be explained as a product of values, norms, beliefs, and regulations that originate in larger institutional contexts. IT outsourcing decisions can be viewed as an outcome of normative, mimetic, and coercive isomorphism.	(Ang et al. 1997; Ho et al. 2003; Jayatilaka 2002; Poppo et al. 1998)

Theoretical Perspective	Theoretical Argument	Studies
Diffusion of Innovation	Diffusion of innovation is the process by which an innovation is communicated through certain channels over time among members of a social system. Four characteristics of the diffusion process are: innovation, time, social system, and communication channels. The adoption of IT outsourcing can be viewed as the diffusion of an innovative process, influenced by various factors.	(Hu et al. 1997)
Social Exchange Theory	Processes evolve over time as participants mutually and sequentially demonstrate their trustworthiness. Parties involve in social interactions where one party is obligated to satisfy a requirement, in order to receive benefit from the other party. The information processing of other party is tuned to the demands that originated from these interactions. For successful IT outsourcing relationships, both parties should demonstrate efforts of developing and maintaining a good relationship by behaving in consistence with the expectation of the other party.	(Lee et al. 1999)
Relational Exchange Theory	Parties involved in an exchange are in mutual agreement that the resulting outcomes of the exchange are greater than what would be obtained otherwise, which motivates both parties to consider the relationship important in and of itself, and to devote resources towards the development and maintenance of the relationship. It is characterized by the presence of norms associated with the creation, preservation, and harmonization of the relationship between the exchange partners. Partners involved in an IT outsourcing relationship should share norms that are "designed to enhance the well-being of the relationship as a whole", in order to get the best value.	(Goles et al. 2002)
Partnership & Relational Perspective	The process of client-vendor interaction is a key feature of exchange. The interactions can be modeled along two dimensions: interactive and distributive. Interactive interactions are characterized by cooperative behavior. Both parties seek ways to achieve mutual objectives while bargaining. Interactive interactions form the basis for long-term relationships.	(Goles et al. 2002; Grover et al. 1996; Klepper 1995; Lee 2001; Lee et al. 2002; Lee et al. 2003; Marcolin 2002; McFarlan et al. 1995; Willcocks et al. 1995a; Willcocks et al. 1998)

Table 3: Theoretical Perspectives and IT Outsourcing Issues Addressed

Issue Addressed	Theoretical Perspective
Make-or-buy decision	Transaction Cost Economics, Resource-Based View, Institutional Theory
Kodak effect	Institutional Theory
Motivation	Transaction Cost Economics, Resource-Based View, Diffusion of Innovation
Scope	Transaction Cost Economics
Performance	Agency Theory, Power Political Theory; Social Exchange Theory, Relational Exchange Theory, Partnership & Relational Perspective
Insource vs. outsource	Transaction Cost Economics, Production Cost Economics, Resource-Based View
Contracts	Agency Theory, Power Political Theory
Partnership	Social Exchange Theory, Relational Exchange Theory, Partnership & Relational Perspective

2.1 IT OUTSOURCING ISSUES

Lee and colleagues review the evolution of IT outsourcing research at different stages of its life-cycle. Major IT outsourcing issues (Lee et al. 2002; Lee et al. 2003) that have been addressed in prior literature will be summarized below. Although discussed separately, it is important to point out that as may be expected, the IT outsourcing issues are interrelated.

2.1.1 Make-or-Buy Decision

In the early stage of the life-cycle of IT outsourcing, IT outsourcing was considered as a commodity. Therefore, the focus of academic research was on the choice between internal development and external acquisition. This issue of boundary choice, as reflected in the early predominance of Transaction Cost Economics, was also referred to as "make-or-buy" decision. The make-or-buy decision is usually made based on a wide range factors that management considers important to the survival and strategic competence of the firm

(Barthelemy et al. 2001; Clark et al. 1995; Lacity et al. 1993a; McFarlan et al. 1995; Pinnington et al. 1995), which are discussed subsequently.

Aside from these considerations, researchers have also suspected possible "bandwagon effect" in IT outsourcing decision-making process. To find out whether there is "bandwagon effect" in the IT outsourcing decision processes, researchers collected and compared data of firm outsourcing activities before and after Kodak's landmark announcement to outsource its IT functions (Hu et al. 1997; Lacity et al. 1995a; Loh et al. 1992b). The results, however, were not conclusive. The study by Loh and Venkatraman (1992) indicates significant impact of Kodak contract on the later outsourcing practices (Loh et al. 1992b). Hu et al (1997), on the other hand, found counter-evidence for the "Kodak effect" (Hu et al. 1997). A possible explanation for this discrepancy is that Loh and Venkatraman's study was in the early days of IT outsourcing when the "bandwagon effect" was likely to be present. As firms became more experienced in the IT outsourcing activities, more recent studies should find much less or no presence of this effect.

Another issue that should be taken into account at the time of IT outsourcing decision is the choice between insourcing and outsourcing. Although it is expected that IT outsourcing may generate potential benefits, the internal IT units should not be excluded from the considerations of alternatives to IT outsourcing because they could be more cost efficient than the outside vendors (Ang et al. 2002; Hirschheim et al. 2002; Lacity et al. 1995a; Reponen 1993).

2.1.2 Motivations

The boundary choice decision of an organization is usually motivated by a combination of economic, technical, and organizational considerations (Clark et al. 1995;

Finlay et al. 1999; Grover et al. 1996). Results from previous survey studies (Antonucci et al. 1998b; Collins et al. 1995; Loh et al. 1992b; Reponen 1993) reveal that cost reduction, flexibility, and focus on core business are among the most dominant motivations (expected benefits) for IT outsourcing. In Table 4, I summarize major motivations for IT outsourcing.

Table 4: Motivations for and Benefits of IT Outsourcing

Category	Motivation	Selected Studies
Economic	Cost reduction	(Altinkemer et al. 1994; Clark et al. 1995; Collins et al. 1995; Ketler et al. 1993; Lacity et al. 1993a; Lacity et al. 1998; Reponen 1993; Smith et al. 1998)
	Economies of scale	(Grover et al. 1994a)
	Shared risk	(Altinkemer et al. 1994)
	Improved performance	(Clark et al. 1995; Venkatraman et al. 1994)
Technological	Access to cutting-edge technology	(Altinkemer et al. 1994; Clark et al. 1995; Collins et al. 1995; Grover et al. 1994a)
	Specialized skills	
	Technological integration	(Altinkemer et al. 1994)
	Reduced technological risk	(Clark et al. 1995; Collins et al. 1995)
	Technological flexibility	(Clark et al. 1995)
Strategic	Focus on core business	(Altinkemer et al. 1994; Collins et al. 1995; Grover et al. 1994a; Smith et al. 1998; Venkatraman et al. 1994)
	Flexibility	(Altinkemer et al. 1994; Collins et al. 1995)
	Strategic alliances	(Altinkemer et al. 1994)
	Innovative use of IT functionality	(Venkatraman et al. 1994)
	Increased knowledge and expertise	(Altinkemer et al. 1994; Clark et al. 1995; Grover et al. 1994a; Ketler et al. 1993; Venkatraman et al. 1994)

2.1.3 Scope

When the decision is in favor of outsourcing IT, the next consideration becomes the scope of IT outsourcing. In prior literature, the scope of IT outsourcing has been discussed in

various formats: degree of outsourcing (complete vs. selective) (Lacity et al. 1995b; Loh et al. 1992a; Pinnington et al. 1995; Willcocks et al. 1995a; Willcocks et al. 1995c), number of vendors (single vs. multiple) (Michell et al. 1997; Ngwenyama et al. 1999), duration of contract (short-term vs. long-term) (Clark et al. 1995; Lacity et al. 1995b; McFarlan et al. 1995; Willcocks et al. 1995c), and outsourced functions (asset vs. service) (Clark et al. 1995; De Looff 1995; Grover et al. 1994a). Prior studies suggest that selective outsourcing with multiple vendors and short-term, tight contract are more likely to achieve positive outcome (Lacity et al. 1998; Lacity et al. 1996; Poppo et al. 2002a; Saunders et al. 1997). Short-term contracts provides flexibility while selective outsourcing eschews the problem inherent in total outsourcing, and demonstrates a way of more flexible and modular outsourcing (Lacity et al. 1996). Although the smaller-sized selective outsourcing deals attracted less public attention than mega-deals, selective outsourcing is the most common practice (Lacity et al. 2000; Lacity et al. 2001; Lacity et al. 1996; Pinnington et al. 1995). IT outsourcing functions are summarized in Table 5 below, and among them, previous survey findings showed that IT infrastructure is the most commonly outsourced IT/IS function that is selectively given out to external providers (Grover et al. 1996; Grover et al. 1994b; Lacity et al. 2000; Lacity et al. 2001).

Table 5: IT Functions Outsourced[4]

Category	Examples
System Operations / Data Center	• Installation, operation and technical maintenance of centralized computers (client/server systems or systems software) • Systems programming • Systems control • Security and catastrophe prevention
Telecommunications / Networks	• Construction, operation, and maintenance of networks • Administration and integration of data and applications servers into networks • Implementation and operation of relevant services for inter- and intra-company information exchange (e.g., EDI)
Applications Development, Implementation, & Maintenance	• Development of software and applications • Systems analysis • Project management • Maintenance of existing applications • Data administration • Implementation and adaptation of standard software packages (e.g., SAP R/3)
Help Desk / User Support / Information Center	• Advise and support for the users • Training, instruction and continued education of users • Problem management • Function as a bridge between other departments and the IS department • Test, procure, install, introduce and maintain hardware and software
IS Planning & IS Management	• Long-term IS planning • Integration of business planningand IS planning • Identification of future IS innovations • IS controlling • Conception of system architecture • Standards and methods

2.1.4 Performance

Management chooses to outsource some or all IT functions of an organization with the expectation that IT outsourcing would bring economic, technological, or strategic

[4] Adapted from Dibbern, J., and Heinzl, A. "Outsourcing Information Systems in Small and Medium Sized Enterprises: A Test of a Multi-Theoretical Casaul Model," in: *Information Systems Outsourcing: Enduring Themes, Emergent Patterns, and Future Directions,* R. Hirschheim, A. Heinzl and J. Dibbern (eds.), Springer-Verlag, New York, 2002.

benefits. However, the IT outsourcing decision provides no assurance of desirable outcome. Therefore, researchers have also focused on performance and success of IT outsourcing (Currie et al. 2001; DiRomualdo et al. 1998; Hays 1998; Poppo et al. 2002a). A number of studies (Gopal et al. 2003; Lacity et al. 1998; Lacity et al. 2000; Loh et al. 1992a; Venkatraman et al. 1994) have examined successful outcomes of IT outsourcing based on various measurement indicators such as cost saving (Lacity et al. 1998), relationship satisfaction (Lee et al. 1999), and overall success (Grover et al. 1996; Lee 2001; Lee et al. 1999). Although respondents of prior studies indicate that cost reduction is the most often realized benefit, researchers acknowledge that IT outsourcing performance/success should be measured along multiple dimensions such as economic, technological, strategic, and overall satisfaction with contract (Lee et al. 1999; Saunders et al. 1997).

On the other hand, a great amount of risk is involved in the IT outsourcing practices. Numerous studies have pointed to the downside of IT outsourcing such as lower service quality, loss of control and flexibility, lock-in relationship, and dependence on vendors (Antonucci et al. 1998a; Araujo 1998; Barthelemy 2001; Earl 1996; Grover et al. 1994a; Lei et al. 1995; Lonsdale 2001). Some researchers (Earl 1996; Lei et al. 1995) argue that IT outsourcing leaves the firm no chance of organizational learning. Much learning about the capability of IT is experiential. Therefore, without experiencing IT, firms will not be able to appreciate the challenges (Earl 1996). In the long run, it is desirable for a firm to maintain innovative capacity in IT because of the potential of finding new ways of providing IT services and of exploiting IT for the business. If the firm chooses to outsource its IT functions, its ability to use IT to innovate may be impaired. A firm's ability to innovate is predicated on organic and fluid organizational processes and experimental and

entrepreneurial competencies, and outsourcing IT renders these premises impossible (Earl 1996).

2.1.5 Cntracts

IT outsourcing arrangements are established and maintained through various types of contracts. As IT outsourcing practices evolve, IT outsourcing contracts become more complicated due to uncertainty and contingencies involved, and play an important role in the success of the IT outsourcing projects (DiRomualdo et al. 1998; Feeny et al. 1998; Willcocks et al. 1995c). A number of researchers have emphasized the importance of effectively designing and managing IT outsourcing contracts (Lacity et al. 1998; McFarlan et al. 1995; Saunders et al. 1997; Willcocks et al. 1995a; Willcocks et al. 1998). Based on IT outsourcing practices, researchers (Behara et al. 1995; De Looff 1995) have developed typologies of IT outsourcing contracts, as summarized in Table 6.

Table 6: Typologies of IT Outsourcing Contracts

Studies	Contract	Characteristics
De Looff (1995)	Time and materials	Payment is based on actual use of personnel and materials
	Fixed fee	Payment is based on a lump-sum for a defined workload or service
	Fixed fee plus variable elements	Payment is based on a predicted changes in workloads or business circumstances
	Cost plus management fee	Payment is based on the real cost incurred by vendor plus a percentage
	Fee plus incentive scheme	Payment is based on some benefits that accrue to the client or performance over and above an agreed baseline
	Share of risk and reward	Payment is based on how well the client or a joint venture performs
Lacity & Willcocks (1995)	Classical contract	Client signs the vendor's standard contract without making any specialized changes.
	Neo-classical contract	Client and vendor include special requirements such as detailing contingencies, measures of performance, service levels, and penalties of non-performance.
	Relational contract	Client and vendor do not detail contingencies in the contracts, implying that contracts will not be used as original references, but both parties will commit to solving disputes under the trust and spirit of partnership.
Lacity & Willcocks (1998)	Fee-for-service contract:	A customer pays a fee to a supplier in exchange for the management and delivery of specified IT products or services. Fee-for-service contract may be categorized as follows: standard, detailed, loose, and mixed.
	Strategic alliance/partnership	Collaborative interorganizational relationships involving significant resources of two or more organizations to create, add to, or maximize their joint value.

2.1.6 Partnership

Although IT outsourcing contracts are an important determinant of the ultimate success of IT outsourcing projects, it is not sufficient to manage and maintain the IT outsourcing arrangements by contracts only. A good contract alone does not ensure a good relationship, and clients and vendors find it necessary to create social norms to complement their use of contracts (Poppo et al. 2002a). Due to the high technological uncertainty and emerging contingencies, no one contract can address every rule and agreement at the outset. Moreover, IT outsourcing arrangements between the clients and vendors also involve non-contractual interactions, which gives rise to forms of relationships that extend beyond the contractual binding (Lee et al. 2002). Having realized the limitations of the contracts, organizations seek a flexible relationship with external vendors to achieve outsourcing success (Klepper 1995; Lasher et al. 1991; McFarlan et al. 1995; Willcocks et al. 1998). An effective partnership between the client and the vendor, therefore, can be a key predictor of outsourcing success (Grover et al. 1996; Lee 2001; Lee et al. 1999). In the sample of their study, Saunders and colleagues find that partnership arrangements are more likely to be successful than supplier relationships (Saunders et al. 1997).

Given the variety of issues that arise in the IT outsourcing context, what theoretical perspectives have been applied to examine the phenomenon? In the following section, I will present an overview of the major theoretical perspectives that have been used in prior IT outsourcing literature and discuss how these theories have been applied to address IT outsourcing issues.

2.2 ECONOMIC VIEW OF IT OUTSOURCING

Economics theories such as transaction cost economics and agency theory argue that hierarchies are more efficient than markets in producing goods and services, under the assumption that organizations and individuals are self-interested and will behave opportunistically. Transaction cost economics has been widely used to describe and explain the IT outsourcing phenomenon. Two types of costs should be considered at the time of outsourcing decision: production and coordination. Agency theory focuses more on how to reduce agency costs using a contract.

2.2.1 Transactions Cost Economics

Transactions cost economics (TCE) is fundamentally about the "make-or-buy" decision faced by a firm. It attempts to explain how the boundary of a firm is determined. Specifically, the organization of a firm's economic activities is determined by the trade-offs between the relative cost of production and coordination (hierarchy) and the relative cost of transaction (i.e., cost of searching, negotiation, contracting, coordination, and control in the market). Whenever the transactions costs of a specific economic activity exceed the coordination costs, it should be kept in-house, and vice versa. Whenever the in-house production costs of an economic activity exceed that of an external provider, it should be carried out in a market rather than in a hierarchy. Transactions costs are contingent upon three factors: asset specificity, uncertainty, and frequency of transactions. The boundary choice of a firm is determined based upon these two contingencies jointly (Williamson 1975; Williamson 1996).

TCE has been a predominant theoretical framework used to explain the IT sourcing phenomenon. Some argue that since IT reduces the unit cost of coordination and the

transaction specificity of investment in inter-firm interactions, the increased adoption of IT will lead to greater degree of outsourcing and hence less integrated firms (Clemons et al. 1993; Malone et al. 1987). In studies that examined the relationship between the IT outsourcing component functions and outsourcing success, researchers (Klepper 1995; Lacity et al. 1993b; McFarlan et al. 1995) have found that TCE provided a good framework for IS outsourcing, and that asset specificity of outsourcing transactions needed to be considered in any decision to outsource (Grover et al. 1994b). A more recent study by Gopal and colleagues extends this line of research by adopting an incomplete contract perspective. They study the determinants of contract choice, and their analysis suggests that the choice of contract and other factors significantly affect the profits accruing to the vendor in the context of offshore software development projects (Gopal et al. 2003).

The theoretical explanatory power of TCE, however, is somewhat equivocal. In a study of economic determinants of IT outsourcing in the banking industry, Ang and Straub found that IT outsourcing was strongly influenced by relative production cost advantages offered by the vendors and that transactions costs played a much smaller role than production costs(Ang et al. 1998) . Having realized the theoretical limitation of Transaction Cost Economics, researchers have called for application of multiple theories beyond Transaction Cost Economics (Baldwin et al. 2001; Poppo et al. 1998). Poppo and Zenger (1998) examine how well various theories explain a firm's boundary choice and find that the decision of boundary choice is likely to be complex, requiring the integration of transactions costs and other theories such as agency theory and social exchange theory.

2.2.2 Agency Theory

Agency theory argues that to achieve the specialization benefit, a principal delegates the work to an agent who has the specialty and performs the work. Agency problem arises when the principal and the agent have different goals and when it is difficult or expensive to for the principal to measure what the agent is doing (Eisenhardt 1989a). The focus of agency theory is on developing the most efficient contract that governs the principal-agent relationship, assuming self-interested people and corporations.

As evidenced in prior literature, one of the most important and most difficult tasks in IT outsourcing is writing the contract that minimizes the risk of agency problem and maximizes control and flexibility (Clark et al. 1995; Clemons et al. 1993; Gopal et al. 2003; Lacity et al. 1993a; Lacity et al. 1995b; Lacity et al. 1998; Lacity et al. 1996; Marcolin 2002; Willcocks et al. 1998). Early studies suggest that firms should create a complete or tight contract, and use the contract as the major control mechanism to safeguard performance and control costs (Behara et al. 1995; Lacity et al. 1993b). The outsourcing context, however, is characterized by incomplete information, and it is impossible for the contracting parties to foresee every future contingency upfront. Therefore, the common IT outsourcing practice is to sign short-term contracts that can be renegotiated and reinterpreted later.

2.3 STRATEGIC MANAGEMENT VIEW OF IT OUTSOURCING

In prior IT outsourcing research, the most widely used theory from a strategic management perspective is the resource-based view. The resource-based view considers a firm's resources as the foundation of the firm's strategy, and examines the strategic impacts the firm's internal resources and capabilities have on its position in competition.

The resource-based view (RBV) has its root in Penrose's seminal work Theory of the Growth of the Firm, and is further developed by Barney (1991). Proponents of the RBV view a firm as a bundle of productive resources, and argue that resources that are scarce, valuable, non-substitutable, and inimitable are sources of sustainable competitive advantage (Barney 1991). The resource-based approach to strategy formulation involves careful analysis of a firm's resource and capability base and recommends selecting a strategy to extend and upgrade the gaps in the resources and capabilities. In the presence of such gaps, the external acquisition of complementary resources and capabilities become necessary. Resource-based view is particularly pertinent to the supplementary nature of IT outsourcing. A firm's boundary choice is determined by its internal IT resources and capabilities (Barney 1999). That is, IT is outsourced because gaps exist between the IT needs and the firm's incumbent stock of resources and capabilities. Through IT outsourcing, a firm can obtain specific human resources (e.g. skilled programming and telecommunication personnel) and technological resources (e.g. network infrastructure) by evaluating its needs and managing the relationship with an outside supplier (Dibbeern et al. 2002; Grover et al. 1996; Grover et al. 1994a). Grover and colleagues (1994b) found empirical support for the resource-based view in the IT outsourcing context. Their results indicate that organizations with gaps in quality of information, and particularly in support, would tend to increase their outsourcing based on the extent of discrepancy. They also found that the organizational strategy and the role of IT moderated the relationship between the capability gap and the degree of outsourcing (Grover et al. 1994b).

2.4 SOCIAL VIEW OF IT OUTSOURCING

IT outsourcing arrangements are typically based on contractual relationships between the client and the vendor. Drawing upon theories from marketing, IS researchers have also adopted a social perspective to study the IT outsourcing phenomenon (Goles et al. 2002; Klepper 1995; Lee et al. 2002; Lee et al. 2003; Marcolin 2002; McFarlan et al. 1995; Willcocks et al. 1998). Clemons and Reddi's prediction of a trend of "moving to the middle" (between market and hierarchy) in the IT outsourcing practices (Clemons et al. 1993) can be viewed as the beginning of the social perspective in IT outsourcing research. Other research findings have echoed the importance of understanding the social contexts in which the economic transactions take place. Social exchange theory, relational exchange theory, and power and political theory have been applied to prior IT outsourcing studies.

2.4.1 Social Exchange Theory

Social exchange is defined as "voluntary actions of individuals that are motivated by returns they are expected to bring and typically in fact bring from others" (Blau 1964). Social exchange theory posits that exchanges are embedded in a social context. Parties that are involved in the exchange behave within the expectation of each other, believing that the other party will behave benevolently in return. Due to the voluntary character, social exchange involves more uncertainty and is less formal than economic exchange (Das et al. 2002). Therefore, *trust* is an important factor in this context. In a social exchange, processes evolve over time as participants mutually and sequentially demonstrate their trustworthiness. The information processing of other party is tuned to the demands that originate from these interactions. Social exchange theorists also consider *dependence* on organization as another actor in the social contexts. For successful IT outsourcing relationships, both parties should

demonstrate efforts of developing and maintaining a good relationship by behaving in a manner consistent with the expectation of the other party. Outsourcing is not recommended if trust is not present between the parties and the dependence of one party upon the other is much higher than the other way around.

2.4.2 Relational/Partnership Perspective

About a decade ago, researchers had different conceptualizations of IT outsourcing partnerships. Some researchers considered it unsuitable to label IT outsourcing vendors as strategic partners because the vendor and the client did not share the profit motives (Lacity et al. 1993b). Other researchers, more receptive to the partnership concept in the IT outsourcing phenomenon, viewed partnership as an arrangement particularly for the total IT outsourcing practices (McFarlan et al. 1995; Willcocks et al. 1995a). Even in the limited area of applications, the partnership arrangement was found to be problematic in some cases (Willcocks et al. 1995a). Neither of these views, however, seems to be applicable to today's IT outsourcing industry. Increasingly, firms are looking to their outsourcing partners for new or improved IT-based business capabilities that can have a direct impact on business performance, such as dynamic forecasting, logistics optimization, and customized marketing and product offerings (DiRomualdo et al. 1998). Increasing attention is being paid to building a successful partnership between the focal firm and the outsourcer (Lee 2001), and firms have been successful in forming partnerships with external vendors to execute only part of the overall suite of IT functions (selective IT outsourcing). The emerging social (relational) perspective of IT outsourcing debunks the view that shared profit motive is the only determinant of the partnership in IT outsourcing. The focal firm and the outsourcer can be partners because the focal firm views the outsourcer as having the knowledge, expertise,

and business perspectives that can contribute in a strategic way to its business (McDowell 2003).

In their recent study, Poppo and Zenger rebut the common belief that relational exchange arrangements are *substitutes* for complex contracts in the interorganizational exchanges. They hypothesize a *complementary* relationship between contracts and relational governance, and empirically test the hypotheses in a sample of information service exchanges. They find evidence that increasingly customized contracts are coupled with high level of relational governance. Results also suggest that the interdependence between formal contracts and relational governance enables performance improvements in interorganizational exchanges (Poppo et al. 2002b).

2.4.3 Power and Political Theory

Three important aspects within any relationship are interests, conflicts, and power. The interests may be reflected through the formation of various interest groups (political coalitions). If conflicts of interest arise, then power and politics serve as the medium for ultimate conflict resolution. Power is the potential of a party to influence the behavior of another in a certain manner. Politics is the manner through which power is exercised.

In the IT outsourcing context, the IT outsourcing decision can be regarded as an outcome of power distribution among stakeholders (such as the internal IT unit, functional units, top management, customers, suppliers, etc.) and political reasons. The stakeholders' perceptions of IT outsourcing are usually reflected in the motivations (or opposition) for IT outsourcing. Power distribution and political strengths of stakeholders, on the other hand, can also be reshaped as a result of an outsourcing arrangement. For example, the internal IT unit may become less favorable because the IT functions are performed and managed by an

external vendor. More power may lean towards the external vendor when the client firm becomes dependent on the vendor. Lacity and Hirshheim (1993) discuss how IT executives use outsourcing as a means to enhance their power.

2.5 CRITIQUE OF PRIOR RESEARCH

Despite the burgeoning body of academic research focused on IT outsourcing, several theoretical gaps exit between experiential reality of IT outsourcing practicestoday and the extant academic research. The present study seeks to fill these gaps.

First, the predominant theoretical frameworks used to explain the IT outsourcing decision have been transaction cost economics and resource-based view. Recent academic research, however, suggests that transaction cost economics and resource-based view are no longer adequate to explain the IT outsourcing phenomenon. Poppo and Zenger (1998) tested how well several alternative theories explained the firms' make-or-buy decisions in information services and found that the boundary choice decision is likely to be complex and requires integration of transaction cost, knowledge-based and measurement reasoning (Poppo et al. 1998). Some other researchers (Baldwin et al. 2001; Lee et al. 2002; Lee et al. 2003) also call for application of multiple theoretical frameworks beyond transaction cost economics and the resource-based view. Recent research on IT outsourcing focuses on issues other than motivation, decision, and success of IT outsourcing. This IT outsourcing research trend shows that researchers are applying multiple and alternative theoretical frameworks to explore multiple aspects of this complex phenomenon (see Table 2 and Table 3).

However, it is surprising that knowledge, as one of the most important component of the knowledge economy, has received limited attention in the IT outsourcing research (see

Table 2). IT outsourcing practices today are no longer the same as those in the traditional sense. In today's economy, firms are experiencing continuous waves of revolutionary change in information technologies. Thus, the reasons for IT outsourcing become different than those more than a decade ago. The focus on motivation for IT outsourcing has shifted from catching up with rivals ("bandwagon effect") and changing sources of profit in the value chain to exploiting technology shifts and emerging markets (Baden-Fuller et al. 2000). Firms sometimes need to buy-in new skills to stay in the competitive race because the key technologies required to fulfill customer needs have changed. On other occasions, faced with the emerging markets, firms usually do not possess either technology or knowledge about the market. A firm needs to gain access to these critical factors, search the emerging market, and carry out innovation through outsourcing to excel in competition when rivals are left in a disadvantaged position without external assistance (Baden-Fuller et al. 2000). These new IT outsourcing practices require not only the transfer of IT artifact, technical knowledge, but also the transfer of non-technical business knowledge (such as business process knowledge or best practices of industry) from the outsourcer to the focal firm. Apparently, the dynamics of the IT outsourcing phenomenon invite alternative theoretical frameworks for further understanding by both academia and practitioners.

Second, although numerous researchers have demonstrated the performance benefits that accrue from IT outsourcing, this research strand lacks a systematic theoretical explanation of the relationship between the IT outsourcing decision and improved performance. Moreover, in studies that highlight the performance benefits, the performance measures used have a tendency to focus on short-term oriented, cost-related benefits. The

impact of IT outsourcing practice on a firm's long-term performance has largely been ignored.

Third, a large proportion of the extant IT outsourcing literature tends to treat the relationship between the outsourcer and the client as an arms-length transaction. This view is not surprising, given that TCE, which considers markets and hierarchies as dichotomies, has been the dominant theoretical lens for viewing IT outsourcing. Both parties are viewed as passive participants, with the client firm handing off part or all of its IT functions to the vendor, and the vendor firm striving to hit the "baseline" as agreed upon in the IT outsourcing contract. The paradox of IT outsourcing, however, is that "*it touts market efficiency when its applicability on a broad scale depends on non-market, human trust building relationships*" (Klein 2002). As a result, some researchers suggest that the IT outsourcing relationship should be managed less as a contract and more as a partnership (Goles et al. 2002; Kern et al. 2002b; Lasher et al. 1991; Lee et al. 1999; Lynskey 1999; McFarlan et al. 1995; Venkatraman et al. 1994; Willcocks et al. 1998). Yet most studies on IT outsourcing to date have not demonstrated how the client and the vendor interact throughout the IT outsourcing practice to achieve the targeted goals. Most of the prior studies used descriptive statistics from large-scale industry surveys or summary recommendations from detailed interviews to identify dos and don'ts of IT outsourcing practices. However, the real dynamics of the complex and multifaceted phenomenon remain largely unknown.

In the IT outsourcing context, the relationship between a client and a vendor is switching from the traditional arms-length relationship to strategic partnership, in which the success of one firm is dependent on the success of the other. A number of case studies shed

light on the ongoing dynamics between IT outsourcing partners (Lasher et al. 1991; Lynskey 1999; Willcocks et al. 1998). In these cases, the relationship between the IT outsourcing partners has been described as cooperative and collaborative, and has been found to yield an extension of technological capabilities of both firms. Several more recent empirical studies have also found that a successful IT outsourcing partnership requires collaboration and knowledge sharing between the focal firm and the outsourcer (Lee 2001; Lee et al. 1999). Successful IT outsourcing in a digital economy is characterized by a collaborative approach to decision making and new ideas, an open flow of information between the companies, and a commitment to share knowledge capital (McDowell 2003). This emerging trend indicates that it is no longer sufficient to get the sophisticated IT function executed by an external vendor. Rather, to achieve a successful outcome from the IT outsourcing practice, the acquired information technology must be aligned with the strategic vision of the firm and integrated in the existing or newly created business processes. Some firms that outsource IT for business impact ask their outsourcing partner not only to implement new systems with bottom-line impact, but to take further responsibility for implementing changes in the business as well (DiRomualdo et al. 1998).

2.6 SUMMARY

In this chapter, prior literature on IT outsourcing was summarized by both IT outsourcing issues of interest and theoretical perspectives that have been applied in prior studies. By pointing out the theoretical gaps, I stress the goal of the dissertation—to provide an alternative lens for viewing the IT outsourcing phenomenon. In Chapter 3 that follows, the social capital perspective and a knowledge-based view are used as the underlying

theoretical frameworks for a proposed research model to examine a firm's IT value creation process through strategic IT partnerships.

CHAPTER 3: THEORETICAL UNDERPINNINGS

This chapter reviews the underlying theoretical frameworks of this dissertation, social capital and the knowledge-based view. The origin of social capital and its salience in studying IT outsourcing will be briefly discussed in this section. The knowledge-based view has been adopted in a wide range of research endeavors in strategy (Eisenhardt et al. 2000).

In addition, the development of the conceptual model is supported by findings from research streams such as organizational learning and strategic alliances. Although a distinctive theory, organizational learning is closely related to the knowledge-based perspective because firms build their knowledge stock through various modes of learning Further, strategic alliances are an area in which knowledge-based view has been extensively applied. Therefore, I review these research streams as well, and summarize key findings from these research streams.

3.1 SOCIAL CAPITAL

Since the early 1990s, social capital has been a widely studied concept in multiple disciplines in social sciences. Rooted in the classics of sociology in the late 1800s, the concept of social capital was introduced by Bourdieu and made popular by Coleman and Putnam in the late 1980s. Bourdieu, the pioneer who first established the framework for theorizing and research in the social capital area, defines social capital as "the aggregate of the actual or potential resources that are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition" (Portes 1998). This definition implies that social capital can be decomposed into two elements: the social relationship itself that allows individuals to claim access to resources possessed by their associates, and the amount and quality of those resources (Portes 1998). Bourdieu's

definition of social capital focuses on the collectively owned capital generated through resources linked to the membership in a group. His major goal is to develop a social stratification of different forms of capitals—social capital, economic capital, cultural capital, etc.

The second school of social capital has adopted a more normative approach. In his 1988 article on social capital in the creation of human capital, Coleman emphasizes that social capital is not possessed by a single entity but is embedded in a network relationship involving multiple entities (Coleman 1988). Coleman argues that social capital is defined by its function: "It is not a single entity but a variety of different entities having two characteristics in common—they all consist of some aspect of social structure, and they facilitate certain actions of individuals within the structure. Like other forms of capital, social capital is productive, making possible the achievement of certain ends that would not be attainable in its absence." (Coleman 1988) Coleman highlights the importance of the closure of a social network, which nurtures and ensures the emergence of effective norms among the members within the network. In addition, access to a certain social network as an information channel forms the basis of future actions of an entity, and therefore may generate added value due to the increased ability of an entity to tap into resources in the social network (Grix 2001).

Putnam's view of social capital shifts focus towards the correlation between the "civicness" (as embodied in density of associations and relations of reciprocity) and the democracy in a geographical region. He treats social capital as "features of social organization, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions" (Putnam 1993). In his research, trust is considered as the

most critical factor that facilitates and perpetuates social capital in a society and the outcome of "norms of reciprocity and networks of civic engagement" (Grix 2001).

Yet another school of research on social capital adopts a network-based utilitarian approach (Burt 1992; Burt 2000; Lin 2001). As summarized by Burt (2000), social capital in essence is a metaphor about advantage that individuals or groups have because of their location in the social structure (Burt 2000). Proponents of the network approach such as Burt and Lin criticize Coleman's definition of social capital as a variety of entities, and propose to remove tautology and confusion by focusing on distinguishable and measurable variables within the egocentric network approach (Burt 1992; Burt 2000; Lin 2001). Specifically, they measure various structural characteristics of a network (such as strength of tie, structural holes, centrality, embeddedness, etc.) to examine the relationships among entities within the network and the outcomes of social capital (Burt 1992; Granovetter 1973).

Despite the obviously sociological origin of social capital, the concept has been considered acceptable in other social science disciplines (Adam et al. 2003). Nahapiet and Ghoshal's seminal article (Nahapiet et al. 1998) has led to an increased application of social capital to business research areas such as intra- or inter-organizational arrangements (Anand et al. 2002; Chung et al. 2000; Koka et al. 2002; Tsai 2000), technology management (Preece 2002), innovation (Adler et al. 2002; Cohen et al. 1999; Reagans et al. 2001; Yli-Renko et al. 2001), organizational behavior(Bolino et al. 2002; Karl 2001; Pennings et al. 1998) and dynamic capabilities (Blyler et al. 2003). Extending the sociology research on the outcomes of social capital (such as efficient governance, democracy, social cohesion, etc.), Nahapiet and Ghoshal (1998) argue from a business and managerial perspective that social capital facilitates the creation of intellectual capital within an organization. Enlightened by their

conceptual framework, researchers have examined the role social capital plays in facilitating knowledge exchange in and among business units (Tsai 2001; Tsai et al. 1998; Yli-Renko et al. 2001) and in determining the extent of innovation (Landry et al. 2002).

Based on previous studies on social capital in the management discipline, I adopt the following conceptualizations of social capital (Adam et al. 2003) for the present research: (1) Social capital works as a catalyst for disseminating human and intellectual capital; and (2) Social capital provides the foundation for greater levels of synergy and coordination. In this dissertation, I intend to extend Nahapiet and Ghoshal's argument further to an interorganizational context, in which firms are involved in networked organizational forms. I study how social capital in such organizational forms influences knowledge creation. Details of the underlying arguments and theory development are presented in the "research model and proposition" section.

Social capital is a new but promising theory for studying the IT outsourcing phenomenon. Burt (2000) has pointed out that social capital promises to yield new insights into why certain people and organizations perform better than others. In the IT outsourcing research area, traditional transaction cost economics and resource-based view of the firm have provided theoretical foundations for understanding *why* and *what* to outsource, whereas social capital will serve as a new theoretical underpinning for understanding *how* IT outsourcing can benefit the firm. It is the access to and the quality of superior knowledge or capabilities from external sources that give the focal firm advantage in new knowledge creation.

3.2 THE KNOWLEDGE-BASED VIEW

It has been recognized that a continuously renewed knowledge stock and an ongoing knowledge creation process have become the one of the managerial priorities in today's organizations. Continuous learning of new knowledge forms the basis for organizational renewal and sustainable competitive advantage (Inkpen 1996). Academic researchers have extended the resource-based view to incorporate knowledge as the most strategically significant resource of the firm (Grant 1996b; Kogut et al. 1992). Proponents of the knowledge-based view argue that heterogeneous knowledge bases and capabilities among firms are the main determinants of sustainable competitive advantage and superior performance (Decarolis et al. 1999).

The widely accepted concept of knowledge in the strategy field is grounded in Western epistemology, in which knowledge is considered as "justified true belief" (Nonaka et al. 1995). In the traditional view, knowledge is modeled as an "unambiguous, reducible, and easily transferable construct, while knowing is associated with processing information" (Eisenhardt et al. 2000). A more recent view of knowledge, however, is based on the distinction between tacit and explicit knowledge (Polanyi 1962). Tacit knowledge is embedded in the individual and is very difficult to articulate. The only way to learn tacit knowledge is through observation and practice. As knowledge is explored, put into action and socially justified, some part of it may be codified into explicit forms that can be processed and transferred. Prior studies in strategy have shown that knowledge (especially tacit knowledge) is the most critical resource of a firm to generate sustainable competitive advantage because of its inimitability and relative immobility (Grant 1996b; Gupta et al. 2000a).

Other researchers categorize organizational knowledge differently. Kogut and Zander distinguish two categories of knowledge as information and know-how (Kogut et al. 1992). Information is the "knowledge that can be transmitted without loss of integrity once the syntactical rules required for deciphering it are known" (Kogut et al. 1992). Knowledge as information implies knowing *what* something means, while know-how is a description of knowing *how* to do something. Know-how is defined as "the accumulated practical skill or expertise that allows one to do something smoothly and efficiently" (von Hippel 1988). Quinn and colleagues argue that there are four different types of knowledge: cognitive knowledge (know-what), advanced skills (know-how), system understanding and trained intuition (know-why), and self-motivated creativity (care-why) (Quinn et al. 1996).

Nonaka developed essential elements of a theory of organizational knowledge creation (Nonaka 1994), a paradigm with a major theme that organizational knowledge is created through an ongoing dialogue between tacit and explicit knowledge. Organizational knowledge creation is viewed as an upward spiral process, starting from the individual level, moving up to group level and organizational level, and even reaching to the interorganizational level (Nonaka 1994). Nonaka argues that while new knowledge is developed by individuals, organizations play a critical role in articulating and amplifying that knowledge.

The value of knowledge to a firm lies in the fact that it will grow exponentially if it is properly stimulated and shared (Quinn et al. 1996). Dierickx and Cool conceptualized the knowledge of a firm as stocks and flows. Stocks of knowledge are accumulated knowledge assets, while flows are knowledge streams within and across organizations that contribute to the accumulation of knowledge (Dierickx et al. 1989). Superior stocks and flows are viewed

as sources of sustained competitive advantage and better performance. Kogut and Zander posited that firms do better than markets in terms of knowledge creation and transfer (Kogut et al. 1992). In the same spirit as Nonaka's spiral process of knowledge creation, they argue that although knowledge resides in individuals, it is embedded in the organizational principles and routines whereby people voluntarily cooperate in an organizational context. Knowledge creation is path-dependent through the replication and recombination of existing knowledge, which makes it possible to become a source of competitive advantage. A firm also needs to continuously recombine its knowledge and apply it to new opportunities in order to deter imitation by its competitors.

Grant further developed the knowledge-based view as a theory of strategy (Grant 1996a) and a theory of organization (Grant 1996b). Grant argues that sustained competitive advantage is obtained by non-proprietary tacit knowledge residing in individuals and the firm's ability to integrate individual specialized knowledge and apply it to new products and services (Grant 1996a; Grant 1996b).

To summarize, the literature on the knowledge-based perspective indicates the following. (1) Knowledge (especially tacit knowledge) is the most strategically important resource that can be a source of sustainable competitive advantage for a firm. (2) The knowledge stock of a firm needs to be continuously renewed through knowledge recombination and knowledge creation to generate value. (3) Value creation is determined by the firm's ability to integrate knowledge at different levels and the ability to apply the integrated knowledge to create new business opportunities. As is evident from the brief review, there is agreement that knowledge constitutes a significant resource for firms and

confers the potential for superior performance and competitive advantage. In essence, knowledge constitutes the basis for organizational learning.

3.3 OTHER RELEVANT RESEARCH STREAMS

Other than the overarching theoretical frameworks, studies in two other research streams—organizational learning and strategic alliance—have been informative for this dissertation. Relevant findings from these two research streams are summarized below.

3.3.1 Organizational Learning

Organizational learning is an underlying theoretical foundation for the knowledge-based perspective. Organizational learning serves as the mechanism through which firms access, obtain, and create knowledge and capabilities to renew their cumulative knowledge stock on a regular basis. Today, managers in most organizations are convinced of the importance of improved organizational learning in order to achieve the organizational renewal and transformation necessary for a burgeoning world market (Nevis et al. 1995). The importance of organizational learning is also manifested in the successful cases of learning organizations that have the well-developed core competencies to launch new products and services and the ability to fundamentally renew or revitalize (Nevis et al. 1995).

Huber defines learning as a process of information processing by an entity, which changes its range of potential behaviors (Huber 1991). Although learning theory originally focused on individuals, it has been increasingly applied to organizational levels, where it is viewed as a key process in the adaptation of organizations to the environment (Argote 1999; Knight 2002). Huber describes organizational learning as a process in which knowledge is acquired from various sources, distributed within the organization, interpreted based on the organizational context, and then stored in organizational memory (Huber 1991).

Huber (1991) argues that there are five processes through which organizations acquire knowledge: congenital learning, experiential learning, vicarious learning, grafting, and searching. Therefore, firms can learn not only from internal sources such as organizational experiments, organizational self-appraisal, and unintentional and unsystematic learning, but also from external sources by imitating competitors or acquiring and grafting on new members who possess knowledge not previously available within the organization (Huber 1991). Numerous studies in strategy have examined organizational learning from external sources. Cohen and Levinthal linked organizational learning and innovation to the evolving knowledge base of the firm by introducing the idea of absorptive capacity, which is the ability to recognize the value of external information, assimilate it and apply it to commercial ends (Cohen et al. 1990). According to Cohen and Levinthal, a firm's ability to internalize external information and knowledge is largely a function of the level of the firm's prior knowledge. In the same vein, Nonaka and Takeuchi, in their book The Knowledge Creating Company, view organizational learning as an adaptive change process that is influenced by past experience, focused on developing and modifying routines, and supported by organizational memory (Nonaka et al. 1995).

A school of thought on knowledge and learning has emerged in the strategy literature, focusing on the social aspects of knowledge (Brown et al. 1991; Spender 1996). This approach focuses more on the *process of knowing* than on *knowledge* as an objective and transferable resource. Knowledge is considered socially constructed and embedded within the context; and the creation of meaning (learning) occurs in ongoing social interaction grounded in working practices and the specifics of social and cultural setting (Eisenhardt et al. 2000). Brown and Duguid (1991) argue that learning theory should be distanced from

codified, transferable and objective notions of knowledge, and focus instead on knowledge in context. In their view, meaningful knowledge is deeply related to daily work, and the acquisition of new knowledge is socially constructed from working practices.

To summarize the above, several major points in the organizational literature are worth noting. (1) Organizational learning is a critical factor for organizational renewal and transformation. (2) Organizational learning is a process in which several knowledge related activities take place. (3) Firms can learn through different channels and from various sources.

3.3.2 Strategic Alliances/Partnerships

Strategy researchers increasingly recognize a growing trend toward the hybrid form of governance structure, or "network form of organization" (Powell 1999). It has been widely acknowledged that the proliferation of interfirm networks such as strategic alliances/partnerships is driven by the challenge of growing knowledge intensity (Adler 2001; Powell 1998). As product life cycles shorten and competition intensifies, timing consideration and access to know-how have become paramount concerns (Powell 1999). Researchers have found that firms are becoming less self-sufficient to generate science and technology to sustain growth in face of the uncertainty and complexity of today's globalized business environment(Morrison et al. 1997; Powell 1999) , and that the most qualified centers of excellence in the relevant know-how are located outside the firm's boundary (Teece et al. 1987). Strategic alliances/partnerships, defined as "any voluntarily initiated cooperative agreement between firms that involves exchange, sharing, or co-development, and it can include contributions by partners of capital, technology, or firm-specific assets" (Gulati 1999), can be viewed as a means by which a firm learns from external sources.

Studies on strategic alliances/partnerships confirm a significant increase in their use as a strategic device (Anand et al. 2000; Gulati et al. 2000; Kale et al. 2000; Kogut et al. 1996; Mowery et al. 1996). Alliances/partnerships are considered not only as a means to acquire complementary resources and capabilities that firms lack (Parise et al. 2001), but also as a means to gain access to other firms' capabilities, supporting more focused, intensive exploitation of existing capabilities within each firm (Mowery et al. 1996). Researchers have identified motivations for forming strategic alliances/partnerships, namely, strategic motivations, transaction cost related motivations, and learning related motivations, among which, the learning related motivations are receiving increasing attention in the academic research (Anand et al. 2000; Dyer et al. 2000; Gulati 1995b; Gulati et al. 2000; Inkpen 1996; Knight 2002; Kogut et al. 1996; Morrison et al. 1997; Mowery et al. 1996; Osborn et al. 1997; Tsang 1997). Some researchers claim that firms enter the alliance arrangement with learning as an implicit goal (Yoshino et al. 1995). To survive and respond to changes in a highly competitive and volatile environment, a firm must be able to continuously learn new knowledge and practices. Forming strategic alliances/partnerships with external entities that are better able to help the firm achieve its goals allows the firm to focus more on its core competencies as well as to exchange knowledge and new ideas with them.

Henderson and Cockburn (1994) examined the knowledge sourcing decisions on the research productivity in R&D projects and found that the allocation of key resources through collaborative processes and linkages to external scientific community were strongly correlated with research productivity (Henderson et al. 1994). Powell et al. (1996) argue that when the knowledge base of an industry is complex, expanding, and widely dispersed, the locus of innovation will be found in networks of learning rather than in individual firms.

They found that the establishment of a network of collaboration in biotechnology firms seems to be a cumulative process, and the development of a central position in the network enables future growth (Powell et al. 1996). Pennings and Harianto (1992) found that technological networking was the best predictor for technological innovation and firms with extensive networking are more likely to implement innovation with external partners (Pennings et al. 1992).

Since organizational learning and the knowledge-based view of the firm are the underlying theories of the formation of strategic alliances/partnerships, a distinct research stream has focused on the knowledge management in strategic alliances. This stream explores how knowledge is transferred across partners (Mowery et al. 1996), how knowledge about collaborating *per se* develops over time and impacts collaborative outcomes (Simonin 1997), and factors that facilitate or inhibit knowledge transfer among members in strategic alliances/partnerships (Adler 2001; Dyer et al. 2000; Lane et al. 1998; Simonin 1999; Szulanski 1996). Knowledge has become the most strategically significant resource of the firm, and can be acquired through collaboration among firms in strategic alliances/partnerships.

To summarize, the strategic alliance/partnership literature highlights the following issues. (1) Strategic alliances/partnerships are a mechanism for acquiring and assessing resources, knowledge, and capabilities that are not readily available in the firm. (2) Strategic alliances/partnerships provide a platform for collaboration and knowledge transfer between or among firms. (3) Through collaboration and knowledge transfer, strategic alliances/partnerships may lead to improved firm performance such as increased productivity and innovation.

3.4 SUMMARY

As illustrated in the literature review above, the knowledge-based view argues for the primacy of knowledge as a value-generating asset and a source of competitive advantage. This view notes that organizational learning is critical for continually expanding a firm's knowledge stock, and highlights the social aspects of learning and knowledge creation. By forming strategic alliances/partnerships, a firm increases its potential capability of knowledge creation and organizational learning. Extending these arguments to the IT outsourcing phenomenon suggests that outsourcing is more than just getting an IT-related job done across the organizational boundaries. Rather than simply obtaining certain information technologies from external sources, both the focal firm and the outsourcer will need to exert effort to make the information technologies work in the focal firm's context. This effort, from a knowledge-based perspective, involves flows of knowledge and ongoing interorganizational learning between these two entities. What are the drivers of such learning? How does such knowledge flow generate value for the focal firm? These questions motivate the model developed next.

CHAPTER 4: RESEARCH MODEL AND PROPOSITIONS

Overall, I view the value creation process in the strategic IT partnerships as a two-stage learning activity. In the conceptual model, the first step of organizational learning involves access to and acquisition of IT resources and knowledge from the strategic partner, which is consistent with the concept of knowledge acquisition proposed by Huber. In this stage, organizational learning is a manifestation of the "increased knowledge and information" (Huber 1991). The second step of learning involves higher level of knowledge internalization and integration, in which the acquired IT resources and knowledge are combined with existing resources and capabilities to create value for the focal firm. This process encompasses the concepts of information distribution, information interpretation, and organizational memory (Huber 1991), and is consistent with the notion of capability of integration proposed by Grant (Grant 1996a).

In this chapter, I present the research model and argue from the standpoint of a client firm that the strategic partnership a firm forms through IT outsourcing constitutes a source of social capital, which facilitates collaboration between the focal firm and its partner. Knowledge exchange and knowledge transfer through collaboration, in turn, generates IT value for the focal firm. In the discussion that follows, the client firm is referred to as "the focal firm" while the IT service provider is referred to as "the outsourcer" or "the partner".

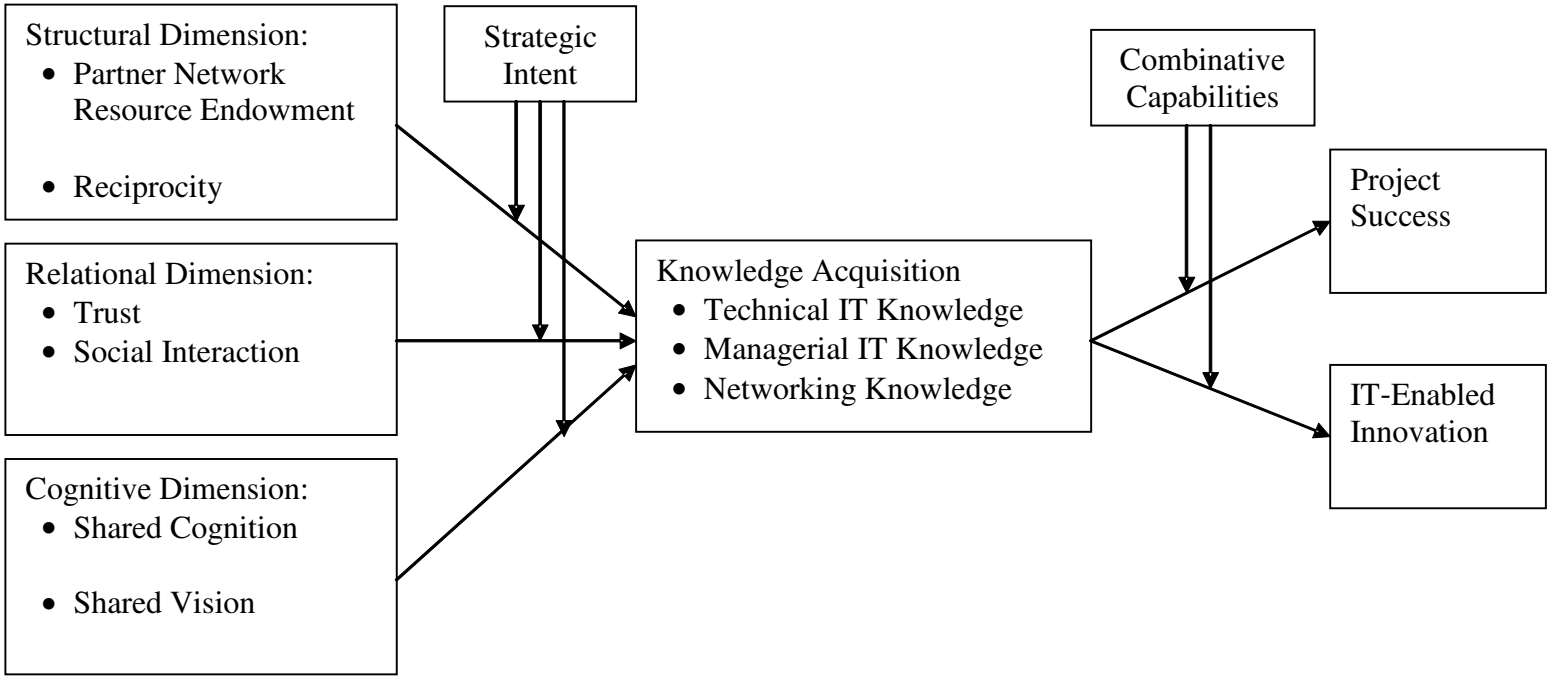
Below, I discuss each major construct (social capital, knowledge acquisition, and IT value creation) of the research model and their interrelationships in greater details. Propositions are developed based on the respective discussions.

4.1 RESEARCH MODEL

As shown in the theoretical model in Figure 1, I adopt a social capital perspective to examine the process of IT value creation through the IT outsourcing partnerships. Specifically, I view a strategic IT partnership as a form of social capital possessed by the focal firm. Various facets of this social capital interact with the Learning Intent of the partnership and jointly result in an increase in the firm's knowledge stock. The increased knowledge stock of the firm, in turn, interacts with the firm's combinative capabilities, and creates IT value for the focal firm. Each of the constructs and relationships in the model are discussed below.

Although the proposed model draws upon the conceptual framework proposed by Nahapiet and Ghoshal (1998), it differs from theirs in the following ways. First, the proposed model focuses on a dyadic relationship at the inter-firm level rather than a network relationship at the intra-firm level. The unit of analysis is the focal firm embedded in a dyadic relationship. Second, the model extends Nahapiet and Ghoshal's by incorporating value created through the generation of intellectual capital (knowledge) and introduces two moderating variables—learning intent and combinative capabilities—as contextual contingencies.

Figure 1: Conceptual Model



4.2 SOCIAL CAPITAL

In this section, I first define the concept of social capital. Then I discuss the facilitating role that social capital plays in facilitation of knowledge transfer and creation. A proposition is developed based on this discussion.

4.2.1 Definition of Social Capital

Integrating various definitions of social capital in sociology, business scholars define it as "the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit" (Nahapiet et al. 1998). Granovetter notes that economic actions are not independent of social relationships surrounding the economic actors and that it may be advantageous for the economic actors to be sensitive and responsive to social relations (Granovetter 1985). Given that strategically participating and managing social relations may provide unique economic opportunities for the economic actors (Uzzi 1996; Uzzi 1997), firms develop social capital by participating in collaborations (Chung et al. 2000). Indeed, analysts of social capital are centrally concerned with the significance of relationships as a resource for social action (Burt 1992; Burt 2000; Coleman 1988) and future economic actions (Chung et al. 2000).

Participating in an IT outsourcing partnership, therefore, can be considered as a source of social capital because it helps develop potentially beneficial relationships with external parties. As shown in the proposed research model in Figure 1, I argue that social capital embedded in an IT outsourcing partnership yields IT value via the intervening process of learning. Specifically, social capital amplifies a firm's existing knowledge stock by influencing the conditions in which knowledge exchange and transfer take place.

4.2.2 Social Capital and Knowledge

I argue that some interesting dynamics reside in the process of how social capital facilitates value creation. In this dissertation, I will adopt the organizational learning perspective and examine how strategic IT outsourcing partnerships create value for the focal firm through knowledge transfer. Nahapiet and Ghoshal (1998) state that social capital facilitates the process of knowledge exchange and combination, which results in knowledge creation. They refer to the result of knowledge creation as intellectual capital.

Dyer and Singh (1998) proposed a relational view of the firm, and argued that a firm's critical resources may extend beyond its boundaries, and that firms that combine resources in unique ways with alliance partners may realize a competitive advantage over competing firms (Dyer et al. 1998). Dyer and Singh also suggested that the exchange of knowledge resources provides value to the alliance partners. Substantial knowledge exchange results in joint learning, and the integration of complementary resources results in joint creation of new products, technologies, and services (Dyer et al. 1998). Strategic IT outsourcing partnerships, as a source of social capital, should also facilitate knowledge transfer between the focal firm and the partner, which in turn will result in knowledge combination to create value.

Prior literature has examined two distinct benefits of social capital: allocative efficiency and adaptive efficiency (Nahapiet et al. 1998). Allocative efficiency results from the reduced information redundancy due to the structural characteristics of the network ties and the decreasing probability of opportunistic behavior due to high levels of trust. Adaptive efficiency is an outcome of the facilitating role that social capital plays in creativity and learning (Nahapiet et al. 1998). Nahapietand Ghoshal (1998) note that social capital

facilitates the development of intellectual capital by affecting the conditions necessary for exchange and combination to occur.

I believe that social capital serves as a complementary rather than competing theoretical lens for research on information technology outsourcing. It complements transaction cost economics theory in that it focuses on social aspects of market transactions. Transaction cost economics considers markets a less efficient way of transferring knowledge than hierarchies. When social capital is created and maintained among parties involved in market transactions, then the problem of lack of efficiency to transfer knowledge in markets will be mitigated.

In this dissertation, the overarching proposition is that social capital embedded in an IT outsourcing partnership provides the enabling foundation for a process of knowledge exchange and transfer, the result of which is knowledge acquisition or an increased knowledge stock of the focal firm. In the following sections, I will further develop propositions at a granular level that follow from this general proposition.

4.3 TYPES OF KNOWLEDGE ACQUIRED

Given the proposition that social capital embedded in IT outsourcing partnerships can facilitate knowledge exchange and transfer, it is important to distinguish the different types of knowledge acquired by the focal firm in the process of exchange and transfer.

Although conceptually appealing, previously proposed typologies of knowledge are not easy to discriminate among in an empirical setting because knowledge can involve both tacit and explicit (or declarative and procedural) aspects at the same time and the aspects of knowledge characteristics are constantly changing (Spender 1996). Therefore, I do not use these typologies. Rather, I contextualize the knowledge construct to the specific domain of

IT. Particularly, I argue that social capital is an enabling antecedent of acquisition of three types of knowledge: technical IT knowledge, managerial IT knowledge, and networking knowledge.

4.3.1 Technical IT Knowledge

Technical IT knowledge refers to the knowledge directly related to the information technology obtained from the external source. Technological knowledge of a firm includes elements such as scientific principles, theories, algorithms, conceptual models, specific analytical or experimental techniques, heuristics, and empirical regularities (Pisano 2000). In the IT context, technical knowledge also includes but is not limited to the following: programming, system analysis and design, and competencies in emerging technologies (Bharadwaj 2000). IT researchers (DiRomualdo et al. 1998; Feeny et al. 1998) have indicated that even in the case of outsourcing, firms need to continuously obtain technical IT knowledge to create a coherent blueprint for a technical platform that responds to current and future business needs, to make partner selection decisions on an informed basis, and to identify how to address business needs that cannot be properly satisfied by standard technical approaches.

4.3.2 Managerial IT Knowledge

Managerial IT knowledge is the knowledge that is not directly related to the technology *per se* but is nonetheless critical for the successful integration and implementation of the technology into business operations. General managerial knowledge includes how to organize and manage projects, coordinate different problem-solving activities, determine goals and incentives, allocate resources and assign personnel, and resolve disputes (Pisano 2000). In the IT context, managerial knowledge includes effective

management of the IT function, coordination and interaction with user community, and project management and leadership skills (Bharadwaj 2000). For instance, in an IT outsourcing relationship, the outsourcer may transfer to the client the best practice based on its prior experience in a certain business area or the same industry. Although not directly linked to the technology, such knowledge may be critical for the application and integration of the technology into a specific business context.

4.3.3 Networking Knowledge

Networking knowledge is the knowledge cumulated through prior experience in networking and partnering. Such knowledge has been recognized as a key asset. For instance, Lorenzoni and Lipparini view a firm's capability to interact with other companies as a distinctive organizational capability, which accelerates the firm's knowledge access and transfer with relevant effects on company growth and innovativeness (Lorenzoni et al. 1999). Pennings and Harianto argue that a firm's experience in dealing with external partners is an integral component of its stock of skills (Pennings et al. 1992). Gulati examined the network resources a firm possessed and found that the extent of capabilities firms accumulated about forming alliances positively affected the frequency with which they enter new alliances (Gulati 1999). Kale and colleagues found that firms with extensive experience in alliances were better able to find the balance between learning from partners and protecting their own knowledge (Kale et al. 2000). Some IT researchers view managing vendor partnerships as a critical imperative for an organization (Rockart et al. 1996). As firms become increasingly virtual in nature, knowledge about networking and vendor management will be more crucial and valuable because such accumulated knowledge will not only help identify the focal

firm's IT outsourcing needs, it will also be important for managing the partnership in the future (Barthelemy 2001).

All three types of knowledge are valuable to the firm not only because they are relevant to the partnerships *per se*, but also because they can be applied to business purpose outside of the partnership arrangement. Such knowledge can be internalized by the focal firm and utilized to explore new markets, offer new products, or form new partnerships (Inkpen 2002). The outcomes of knowledge internalization and integration are manifested as IT value, which will be discussed below.

4.4 LEARNING INTENT

Social capital provides an enabling foundation for knowledge exchange and transfer. However, the foundation alone does not guarantee knowledge transfer unless the participants are motivated to do so (Gupta et al. 2000b; Nahapiet et al. 1998; Szulanski 1996). Even when opportunities for knowledge transfer exist within partnerships, firms may view the purpose of the partnership differently. Some may consider the partnership an opportunity for the external exploration of knowledge, while others may adopt a more traditional perspective of a vendor-client transaction that questions the existence of learning within this relationship. Therefore, firms may have different intentions in terms of learning (Parise et al. 2001). In this dissertation, I term the propensity to view partnerships as an opportunity to learn as "Learning Intent". With greater Learning Intent, the focal firm may intentionally seek knowledge from its partner and encourage knowledge transfer, thus yielding an increased knowledge stock. In its absence, the focal firm may overlook the useful knowledge that the partner possesses and bypass the opportunity for knowledge transfer. Therefore, the Learning Intent works as a moderator in the relationship between the social capital and the

incremental knowledge stock. The influence of social capital on knowledge acquisition by the focal firm will be more significant when the focal firm perceives the partnership as an opportunity to learn and is more willing to seek knowledge from its partner than otherwise. This moderating effect applies to all of the proposed relationships between dimensions of social capital and the knowledge acquisition by the focal firm, and is reflected in all the propositions developed subsequently.

4.5 DIMENSIONS OF SOCIAL CAPITAL

As pointed out earlier, research on social capital is more diverse than unified. Given the fact that researchers define social capital in various different ways, Adler and Kwon note that "the concept of social capital offers a way to bring more theoretical specificity to a broad range of phenomena" (Adler et al. 2002). The growing body of diverse conceptualizations of social capital indicates that the concept of social capital can be viewed as a genotype with many phenotypic applications (Adam et al. 2003). The context-specific nature of the concept of social capital suggests that any aspect considered to be social capital should be defined "by virtue of institutions or social networks in which they are embedded" and that social capital "stems not only from the subjective attributes … but more profoundly from emergent and existing social infrastructures which facilitate individual and collective actions of many kinds" (Foley et al. 1999). Prior research has applied a variety of operationalizations of social capital, but a few constructs—trust, norms, and network memberships (Adam et al. 2003; Foley et al. 1999)—are recurrent throughout the studies. Based on this observation, Nahapiet and Ghoshal (1998) make a distinction among three dimensions of social capital: structural, relational, and cognitive. Later, Adler and Kwon (2000) echoed this categorization by focusing on networks (structural dimension), shared norms (relational

dimension), and shared beliefs (cognitive dimension) (Adler et al. 2000). Since the view of the concept of social capital is dependent on the researcher's disciplinary background and on the questions being addressed (Adam et al. 2003), I believe that it is reasonable to adopt a categorization that is most appropriate and applicable to the business environment. Given its acknowledged robustness in theoretical definition and empirical support, the dimensions of social capital proposed by Nahapiet and Ghoshal (1998) are selected for the proposed research context.

4.5.1 Structural Dimension

The structural dimension of social capital refers to "the overall pattern of connections between actor—that is, who you reach and how you reach them" (Nahapiet et al. 1998). The fundamental argument of social capital theory is that network ties provide access to resources. Social capital is a valuable source of information benefits because "who you know" affects "what you know". In the proposed model, I will use the network resource endowment of partner (size, financial abundance, diversity, and number of network ties) to describe potential sources of benefits from "who you know", which will determine "what you know" (incremental knowledge stock).

The information benefits of social capital are realized in three forms: access, timing, and referrals (Burt 1992; Burt 2000). Partners with better resource endowment are more likely to provide such benefits due to their network centrality, financial slack, and knowledge scope. In the IT context, a firm may find from time to time that it needs certain technological capabilities that are critical to its success in competition yet are not readily available through internal development. For instance, the European retailer Carrefour chose Accenture as its partner to carry out its global system deployment project not only because of Accenture's

successful experience in general design and implementation of integrated global IT and management systems, but also because of Accenture's global reach and ability to provide worldwide support, and its recent experience with several other major international retail organizations. Sony Computer Entertainment Europe partnered with Accenture to develop a B2C e-commerce capability that was not available internally. This partnership provided benefits of access and timing so that Sony was able to roll out the B2C service within 8 months before the launch of the new PlayStation2.

In the case where the related firms do not have such technological capabilities, the focal firm could still benefit from opportunities in that the related firms might know other firms in the network that could solve the problem. For example, the focal firm may leverage the outsourcer's network resources, i.e., its connection and partnership with other firms that have the capabilities needed.

Research evidence suggests that large and well-established firms tend to have larger knowledge stock and more relational resources, and partnering with such firms may enable the focal firm to access much needed knowledge and skills at a timely manner. For example, Stuart (2000) found that partner endowment could influence the advantage of the alliance partner and partnering with well-known firms conveys status to a focal firm (Stuart 2000). Henderson and Cockburn (1996) found that the effects of economies of scale and knowledge spillovers were stronger in larger firms than in smaller firms and that large firms benefited primarily from economies of scope in the form of a larger and more diversified knowledge pool (Henderson et al. 1996). Therefore,

Proposition 1a: The network resource endowment of the strategic IT partner is positively related to the acquisition of technical, managerial, and networking knowledge by the focal firm.

Proposition 1b: The influence of the network resource endowment of the strategic IT partner on the acquisition of technical, managerial, and networking knowledge by the focal firm is moderated by the focal firm's Learning Intent.

In addition to "who you know", the structural dimension of social capital also reflects the pattern of connection among members, i.e. how members within a social network are connected with each other. One of the mechanisms that governs the processes of social interactions among individuals is reciprocity, which reflects the "pattern of exchange through which the mutual dependence of people, brought about by the division of labor, is realized" (Gouldner 1960). The fundamental principles of reciprocity lies in what Gouldner refers to as the "norm of reciprocity" (Gouldner 1960). When the norm of reciprocity is established, embedded obligations are generated through exchanges of benefits or favors among individuals. For example, in a social exchange, party A receives benefit or favor from party B, therefore becomes indebted to party B. Party A remains indebted until she fulfills the obligation to repay the benefit or favor to party B.

The motivation of reciprocity stems from individuals' egoistic beliefs, and the norm of reciprocity serves as a mechanism for stabilizing social systems and for initiating social interaction and creating social structures (Gouldner 1960). The chance of an individual to receive benefits in the future increases if this individual reciprocates favorable treatments. Failure to repay debt may benefit an individual in the short-term, but creates conflicts among individuals and causes breakdown of reciprocity within the social system.

In a study on how organizational field network properties influence the rate of formation of collaborative ties among firms, Kenis and Knoke develop a set of field network properties such as network density, reciprocity and centralization that may influence the tie formation rate in a nonlinear fashion. They focus on the information reciprocity in the field network, and argue that a field that features two-way open communication channels may have increased rate of tie formation among members (Kenis et al. 2002). The open structure of the field networks enables information circulation and encourages members to exchange information that alerts them of future partnership opportunities.

Following from the discussion of information reciprocity, I argue that the nature of information relationship between the focal firm and the outsourcer as specified in the contractual agreement can influence the knowledge transfer process. Mowery et al. (1996) suggest that interfirm knowledge transfers are more limited in unreciprocated and unilateral information relationships such as licensing agreements, as opposed to reciprocated and bilateral information relationships such as technology sharing or joint development agreement (Mowery et al. 1996). Information and knowledge flows in the IT outsourcing relationships are mainly reflected in the power that each partner has in terms of decision-making and problem solving (Clark et al. 1995; Subramani et al. 2003). If both parties consider each other as equal partners with similar status in decision-making and problem solving, then it is more likely that both parties will exhibit high levels ofreciprocity, expecting that the other will do the same in return. In other words, both parties expect to benefit from the information and knowledge that the other party provides through decision-making and problem solving, and will reciprocate by sharing information and knowledge with equal levels of commitment and fairness. In contrast, when information flows in single

direction in the decision-making and problem solving processes, structural blockage is created. In this case, one party always receives information more than the other does, thus discouraging the other party from future knowledge contribution and resource commitment to the relationship (Chung et al. 2000). Even if the participants possess heterogeneous knowledge and skills, joint decision-making and problem solving indicate symmetric power distribution among participants in the relationship, and hence greater willingness of each to contribute resources and knowledge. Asymmetric power is a hindrance to the collaborative partnership and will inhibit effective knowledge transfer, thus reducing the extent of knowledge acquisition that occurs. Therefore,

Proposition 2a: Higher level of reciprocity between the partners in the strategic IT partnership is positively related to the acquisition of technical, managerial, and networking knowledge by the focal firm.

Proposition 2b: The influence of the level of reciprocity between partners in the strategic IT partnership on the acquisition of technical, managerial, and networking knowledge is moderated by the focal firm's Learning Intent.

4.5.2 Relational Dimension

The relational dimension of social capital refers to "those assets created and leveraged through relationships, and parallel to what was described as behavioral as opposed to structural" (Nahapiet et al. 1998). This dimension reflects the relational characteristics of the "soft" side of the social capital—something that is not specified in the structure of the partnership, such as goodwill trust and social interaction.

Many studies of strategic alliances have found that trust is a major antecedent of successful partnerships (Dyer et al. 1998; Gulati 1995a; Gulati et al. 2000; Hamel et al. 1989;

Kogut et al. 1996; Liedtka et al. 1997; Morrison et al. 1997; Mowery et al. 1996; Tsai et al. 1998; Uzzi 1996). Trust indicates a willingness to assume risk when the other party might take advantage of your vulnerability, based on the faith in the good intent and concern of exchange partners, belief in their competence and capability, belief in their reliability, and belief in their perceived openness. Implied in the definition are two different views of trust: (1) a risk view based on confidence in the predictability of the other party's behavior and (2) a moral view based on confidence in the goodwill of the other party(Ring et al. 1994) . While the risk-based trust can be ensured by formal contractual means, the goodwill-based trust is developed through interpersonal interactions that generate social-psychological bonds between both parties (Ring et al. 1994). Therefore, when both parties depend more on their confidence in each other's goodwill, trust can be considered as an alternative or complement to formal, arms-length governance mechanisms (Dyer et al. 1998; Larson 1992). Prior studies have found that trust lubricates cooperation and facilitates free information and knowledge transfer between partners. Trust is at the heart of effective knowledge-intensive interfirm networks (Powell 1999). Indeed, we see a growing number of firms building long-term, trust-based partnerships with their suppliers. A growing body of research shows that when firms need innovation and knowledge inputs from suppliers rather than just standardized commodities, no combination of strong hierarchical control or market discipline can assure as high a level of performance as trust-based community (Bensaou et al. 1995; Dyer 1996). Low trust relations enable cost improvements but are unable to stimulate the creation of new knowledge (Adler 2001). In the absence of prior interaction, trust stems from previous experience of the focal firm in partner relations or the reputation of the partner. Therefore,

Proposition 3a: Higher level of trust between the focal firm and the strategic IT partner is positively related to the acquisition of technical, managerial, and networking knowledge by the focal firm.

Proposition 3b: The influence of the level of trust between the focal firm and the strategic IT partner on the acquisition of technical, managerial, and networking knowledge by the focal firm is moderated by the focal firm's Learning Intent.

Social interaction refers to the intensity of social relationships between partners. Ring and Van de Ven (1994) note that tacit know-how and intangible assets are more easily employed through relational rather than transactional exchanges (Ring et al. 1994). Mutual trust, respect and friendship derived from relational exchanges are referred to as "relational capital" (Kale et al. 2000), which facilitates one-on-one interaction between two firms within the partnership. During such interactions, the partners learn about each other and develop norms of equality. In addition, close and intensive personal interactions among individuals of partner firms play a crucial role in knowledge transfer because one of the most important premises for interorganizational learning is to understand where the relevant knowledge resides in the partner firm and who possesses it (Dyer et al. 1998; Kale et al. 2000). Interpersonal relationships and interactions act as effective mechanisms to transfer tacit or sticky knowledge across organizational boundaries, and the effectiveness of interorganizational knowledge transfer depends on the extent to which individuals from the two firms have direct and close contact with each other. In other words, frequent encounters are an important vehicle for knowledge exchange. Therefore,

Proposition 4a: Higher levels of social interaction between individuals of the focal firm and those of its strategic IT partner are positively related to the acquisition of technical, managerial, and networking knowledge by the focal firm.

Proposition 4b: The influence of levels of social interaction between individuals of the focal firm and those of its strategic IT partner on the acquisition of technical, managerial, and networking knowledge by the focal firm is moderated by the Learning Intent of the focal firm.

4.5.3 Cognitive Dimension

The cognitive dimension of social capital refers to "those resources providing shared representations, interpretations, and systems of meaning among parties" (Nahapiet et al. 1998). Although it is widely recognized that innovation is achieved by combining different knowledge and experience and that diversity of knowledge backgrounds is a way of expanding knowledge, social exchange and combination processes requires meaningful communication, which is based on some shared language or mutual understanding of the context (Boland et al. 1995; Nahapiet et al. 1998).

Knowledge transfer and learning require a shared cognition and shared vision. Shared cognition is "knowledge structures held by members of a team that enable them to form accurate explanations and expectations for the task, and in turn, coordinate their actions and adapt their behavior to demands of the task and other team members" (Cannon-Bowers et al. 1993). A shared cognition is one of the terms used to describe the process in which dyads, groups, or larger collectives make collective sense of the surroundings. The collective sense-making not only resides in individual members of the collective, but also create a consensual understanding among them. Such common understanding reduces the barriers of

understanding between partners because they have similar cognitions and knowledge regarding the context.

However, the relatedness between the knowledge structure of the focal firm and that of its partner may be curvilinearly related to learning (Ahuja et al. 2001). It is well established that the creation of knowledge often occurs by bringing together knowledge from disparate sources and disciplines. Too little relatedness will provide little common background of understanding and absorptive capacity on both sides, and both parties will suffer from the stickiness of the knowledge transferred (Szulanski 1996). Too much relatedness, however, creates the pitfall of the weakness of strong ties in that little new knowledge is likely to be created. Lane and Lubatkin (1996) introduced the concept of relative absorptive capacity and examined the relationship between knowledge transfer and similarity between partners. They found that similarity of basic knowledge was positively related to learning, while similarity of specialized knowledge was negatively related to learning (Lane et al. 1998). Collectively, these findings suggest the following:

Proposition 5a: Higher level of shared cognition between the focal firm and the strategic IT partner is positively related to the acquisition of technical, managerial, and networking knowledge by the focal firm in a non-linear fashion.

Proposition 5b: The influence of the level of shared cognition between the focal firm and the strategic IT partner on the acquisition of technical, managerial, and networking knowledge is moderated by the focal firm's Learning Intent.

Common values and a shared vision are major manifestations of the cognitive dimension of social capital. They reflect the extent to which partners to an exchange have common beliefs regarding the importance of the motives for transacting, as well as the goals

and objectives of the exchange (Young-Ybarra et al. 1999). Common values and shared vision create harmony of interests, which in turn, reduces the possibility of opportunistic behavior (Ouchi 1980). A shared vision clarifies the common goal of the partnership, reduces the conflict in interests, and mitigates the problem of opportunistic behaviors in the "learning race" (Kogut 2000). If the focal firm and the partner share a vision and values, they are less likely to hurt each other by pursuingself -interests and will be more motivated to expend effort to create a win-win situation, in which both parties are better off by sharing knowledge and expertise (Tsai et al. 1998). The above arguments suggest the following:

Proposition 6a: Higher level of common values and a shared vision between the focal firm and the strategic IT partner is positively related to the acquisition of technical, managerial, and networking knowledge by the focal firm.

Proposition 6b: The influence of the levelof common values and a shared vision between the focal firm and the strategic IT partner on the acquisition of technical, managerial, and networking knowledge is moderated by the focal firm's Learning Intent.

4.6 THE OUTCOMES OF KNOWLEDGE ACQUISITION: IT VALUE CREATION

Access to resources and capabilities through the IT outsourcing partnership will add to the cumulative stock of resources and capabilities, and is potentially valuable for the firm because it provides the essential ingredients in the form of technical, managerial, and networking knowledge. In addition, a firm's ability to create value is not based upon its access to physical or financial assets. Rather, such ability is generated from its sets of intangible, knowledge-based resources (Itami 1987). However, in order for the knowledge to be useful and valuable for the focal firm, it has to be integrated with existing knowledge and

capabilities. In other words, it is through a process of knowledge recombination that value gets created (Grant 1996b; Kogut et al. 1992). The result of such process of knowledge recombination manifests itself in the form of IT value—success in IT outsourcing, namely, success in business operations and IT-enabled innovations. As shown in Figure 1, I also argue that increased knowledge stock interacts with a firm's combinative capabilities in generating such value.

4.6.1 Combinative Capabilities

The strength of the transformation from knowledge to value is profoundly dependent on the combinative capabilities of the firm. Nahapiet and Ghoshal note that one of the conditions for creation of intellectual capital is the firm's capability of combining information or experience (Nahapiet et al. 1998). Kogut and Zander (1992) define combinative capability as "the intersection of the capability of the firm to exploit its knowledge and the unexplored potential of the technology, or technological opportunity". As they point out, "…Creating new knowledge does not occur in abstraction from current abilities. Rather, new learning, such as innovations, are products of a firm's combinative capabilities to generate new applications from existing knowledge." (Kogut et al. 1992) Organizational learning does not stop after knowledge acquisition. In a recent study, absorptive capacity, the critical antecedent and outcome of learning, was extended to also include assimilation, transformation, and exploitation of knowledge (Zahra et al. 2002). The reconceptualization of absorptive capacity highlights the importance of recombination and integration of acquired and existing knowledge.

The knowledge-based theory of strategy proposed by Grant (1996a) emphasizes a firm's ability to integrate knowledge from various sources. Grant and other scholars (Kogut

2000; Kogut et al. 1996) also extend the argument to an interorganizational context and suggest that knowledge can also be integrated externally through relational networks that span organizational boundaries. Such networks provide efficient mechanisms for accessing and integrating new knowledge, especially in high velocity environments, where speed and scope of knowledge integration are critical for sustaining competitive advantage. The IT outsourcing partnerships provide the focal firm with access to knowledge and capabilities. The externally acquired IT resources, knowledge and capabilities alone, however, cannot generate much value for the focal firm unless they are fully integrated with the existing knowledge to generate a right mix of new knowledge and capabilities for the focal firm. It is through combination of the two previously unrelated stocks of knowledge—the externally acquired knowledge and the existing knowledge stock—that value is created. Therefore, as a result of partnering with an IT outsourcer, the focal firm will acquire a combination of technological IT knowledge, managerial IT knowledge, and networking knowledge. The acquired knowledge will be fully deployed to its greatest potential only if it is integrated with the existing knowledge stock of the focal firm, suggesting a moderating effect of combinative capabilities on the relationship between knowledge acquisition and IT value creation. This moderating effect will be reflected in the propositions developed below.

4.6.2 Success in Business Operations

One of the manifestations of value generated from IT outsourcing is success in business operations. With abundant evidence of information technology being utilized as a strategic differentiator, researchers have attempted to identify critical organizational capabilities that enable effective business operations.

Knowledge has been regarded as the most important resource that a firm can possess, and is playing an increasingly critical role in a firm's success in strategic competition (Grant 1996a; Helfat et al. 2000; Pisano 2000).

In prior IS outsourcing studies have examined the outcomes of IT outsourcing from business and user perspectives. From the business perspective, some studies assessed the success of IT outsourcing as the degree to which predefined objectives of IT outsourcing are realized in terms of economic, strategic, and technological benefits (Grover et al. 1996; Lee et al. 1999; Lee et al. 2004). The strategic benefits of IT outsourcing refer to the ability of the firm to focus on its core business, outsource routine IT activities so that it can focus on strategic uses of IT, and enhance IT competence and expertise through contractual agreements with an outsourcer. The economic benefits of IT outsourcing refer to the ability of a firm to utilize expertise and economies of scale in human and technical resources of the service provider to manage its cost structure through unambiguous contractual agreements. Technological benefits refer to the ability of a firm to again access to leading-edge technology and to avoid the risk of technological obsolescence that results from the dynamic changes in IT.

From the user perspective, some studies addressed the issue of success of IT outsourcing from a user perspective. Lee (1999) studied the level of perceived quality of IT services provided as an outcome of outsourcing, and focused on the reliability, relevancy, accuracy, currency, and completeness of output information(Lee et al. 1999). Whitten (2004) found that the user information satisfaction in an IT outsourcing context is determined by multiple factors such as services provided by the vendor, quality of vendor staff, quality of output information, and users' perception on learning and involvement in the project

(Whitten 2004). Kim et al (2003) studied how an outsourcing service provider can satisfy different user groups in the client company, and found that different users have different criteria (such as transaction relationship, partnership in outsourcing, and task-related and IT-related performance) to evaluate the system (Kim et al. 2003).

Although a number of previous studies have addressed the issue of success in IT outsourcing from various angles, there seems to be a missing link between IT outsourcing and performance measures (Mahnke et al. 2005). Key determinants that affect the overall performance of the outsourcing process remain to be empirically addressed in greater depth. Recent studies that utilize a relational view have found evidence that knowledge sharing as a measure of partnership quality contributes positively to outsourcing performance (Lee 2001; Willcocks et al. 2004). Based on the findings of prior studies, one can postulate that IT outsourcing not only allows a firm to focus more on its core competencies, but also provides an opportunity for the client firm to gain knowledge, skills and expertise from the outsourcing service provider. Such knowledge, skills, and expertise, when assimilated in the client organization, may become the catalyst for improvement in operation processes (Willcocks et al. 2004).

To summarize the above arguments, knowledge may enable a firm to achieve efficiency in business operations. Acquisition of various types of knowledge from external sources, therefore, can strengthen a firm's ability to increase efficiency in various areas of business.

Proposition 7a: Higher level of acquisition of technical, managerial, and networking knowledge by the focal firm from the strategic IT partnership is positively related to its success in business operations.

Proposition 7b: The influence of the acquisition of technical, managerial, and networking knowledge by the focal firm on the focal firm's success in business operations is moderated by the focal firm's combinative capabilities.

4.6.3 IT-Enabled Innovation

The second manifestation of value generated from IT outsourcing, IT-enabled innovation, is perhaps the most important way in which IT can contribute to a firm (Mason et al. 1997). Innovation, defined as commercialized new ideas, such as new products and/or services, new organizational forms, or new markets (Schumpeter 1950), is widely acknowledged to lie at the heart of a firm's capability to sustain competitive advantage (Abernathy et al. 1985). Innovation is critical for survival and success in a high velocity environment, in which firms can only have temporal competitive advantage and have to keep refining their competitive advantage through "creative destruction" (Schumpeter 1950) on a regular basis.

The conceptualization of innovation has changed drastically during the past several decades. Rather than discrete event resulting from isolated individuals, innovation nowadays is considered as a process, in which a variety of actors constantly interact and exchange knowledge (Landry et al. 2002). Therefore, innovation can be viewed as a result of interactive learning and continuous expansion of knowledge. Knowledge accumulated and renewed over time will enable new ways of thinking and the implementation of novel ideas (Hurley et al. 1998). Convergence of many types of knowledge detained by different sources will eventually result in innovation.

In this dissertation, I view IT-enabled innovation as new products, services, or processes developed, new organizational forms realized, and new markets explored by the

focal firm through the application IT (Agarwal et al. 2002; Chatterjee et al. 2002), and suggest that such innovation is a key facet of the value that IT generates for the firm. For example, in the mid to late 1990s, many firms partnered with Internet-based service providers to speedily establish a web presence. Going online enabled these firms to provide new products or services to a larger customer base through the newly created distribution channel. However, such opportunities could not have been realized without the extensive application of and knowledge about the technology.

As noted earlier, the role of knowledge in enhancing and sustaining innovation is a recurrent theme in the strategic management literature (Grant 1996a; Grant 1996b; Helfat et al. 2000; Kale et al. 2000; Kogut et al. 1992; Kogut et al. 1996; Koza et al. 1998). In the IT context, knowledge acquired from external sources can facilitate IT-enabled innovation in two ways. First, the formation of an alliance with an external partner expands the range of resources, knowledge, and capabilities that the focal firm can utilize. Access to such resources, knowledge, and capabilities enables the focal firm to realize the strategic goals and implement its new ideas that would be impossible otherwise (Feeny et al. 1998). Clearly, the focal firm acquires the technical know-how and business understanding necessary to generate new thinking about applications of IT. The knowledge and capabilities acquired form a building block for the focal firm to collaboratively explore and develop new business initiatives together with the IT outsourcing partner. Second, the exposure to external sources of knowledge and capabilities broadens the focal firm's business horizon and enables it to envision business processes that information technology can make possible. Increased technical and business knowledge will increase the focal firm's awareness of new business opportunities enabled by IT, thus causing it to be more proactive in initiating more

innovations. The networking knowledge related to managing external partnerships should also enhance the abilities of IT executives and professionals to interact more effectively with their future IT partners to better serve its business needs. The above arguments suggest the following:

Proposition 8a: Higher level of acquisition of technical, managerial, and networking knowledge by the focal firm from the strategic IT partnership is positively related to its IT-enabled innovation.

Proposition 8b: The influence of acquisition of technical, managerial, and networking knowledge by the focal firm on the focal firm's IT-enabled innovation is moderated by the focal firm's combinative capabilities.

4.7 SUMMARY

In Chapter 4, major constructs such as social capital, knowledge acquisition, and IT value have been discussed. Specifically, I not only established the causal relationships among them based on theoretical arguments, but developed fine granular propositions by examining various dimensions of social capital, different types of knowledge acquired, and manifestations of IT value creation. I believe that the propositions provide a solid theoretical foundation and methodological guidance for future empirical test of the model. I discuss the research setting and methodology, as well as data analysis and findings in the sections that follow.

CHAPTER 5: RESEARCH METHODOLOGY

This chapter describes the research design, methodology, and procedure of the study for this dissertation. Specifically, this chapter highlights the research setting, participants, data collection procedures, measures, power considerations, and analytical strategies.

Due to the lack of existing understanding and the complexity of the phenomenon of interest, no single research methodology is sufficient to provide the extensive and rich information needed to satisfactorily address the research questions. Additionally, any particular data source or a single research method may suffer from inherent limitation or bias. Disadvantages of single methodology caused by such limitation or bias can be mitigated when multiple data sources or research methods are combined, a technique called triangulation (Creswell 1994). Triangulation provides opportunities for the researcher to seek convergence of results and to observe overlapping and different facets of a phenomenon that emerge from multiple sources (Creswell 1994). Furthermore, triangulation adds scope and breadth to the study. Therefore, I conducted the research using a combined research design—mini case studies and a survey that was distributed to a larger sample.

5.1 CASE STUDIES

A case study methodology was chosen for the following reasons(Creswell 1994; Yin 1993; Yin 1994). First, there have been a few prior empirical studies on knowledge in IT outsourcing partnerships, and the concept of IT outsourcing partnerships as a form of social capital is "immature" due to a lack of previous research. Second, since I question the adequacy of existing theories applied to IT outsourcing research and propose an alternative and complementary theoretical lens, there is a need to explore and describe the IT

outsourcing phenomenon in greater detail to provide preliminary evidence for the proposition.

Due to the scale of the phenomenon of interest and resource constraints, I conduct only two case studies and used a theoretical sampling method for the research design, an approach focusing efforts on theoretically useful cases that can highlight, replicate, and/or extend the theory (Eisenhardt 1989b).

In March 2005, I visited two organizations in China thathave been involved in a strategic IT partnership through outsourcing for several years. Both are top-ranking firms on the 2004 iPower500 list, which consists of business organizations that best utilize information technologies in the fields of IS planning, decision support, business processes, and electronic business. The 2004 iPower500 firms are also the population which I draw my survey sample from. I conducted on-site interviews with two employees of each firm: the CIO and the project manager for the outsourcing project, and studied the IT infrastructure of both organizations. All interviews were based on open-ended questions chosen from the interview protocol (as shown in Table 7). Each interview lasted about 30 to 45 minutes, so not all questions in the protocol were addressed. These interviews provide preliminary evidence to support the proposed theory. Findings from the two mini case studies are reported below based on the interview transcripts.

Table 7: Interview Questions

Related Construct	Interview Questions	Potential Respondents
General Descriptive	Please describe your role in your firm? To whom do you report to?	All
Resource Endowment of Partner	What are the major determinants when you make the decision of partner selection? Please describe the contract between your firm and your IT partner (e.g., long- vs. short-term contracts, tightly vs. loosely defined contracts). Does each side play an equally important role in the decision making and problem solving?	IT Executive of Focal Firm
Trust	Please describe the interaction between your firm and the partner firm. What is your perception of your partner? How would you describe the relationship between your firm and the partner at all levels?	IT Executive of Focal Firm Project Manager of Focal Firm Partner Firm Manager
Shared Vision	How would you describe your firm's business vision? Are you aware of the partner firm's vision? In terms of the partnership, to what extent do you believe these two visions overlap?	Business Executive of Focal Firm Partner Firm Manager
Shared Cognition	To what extent would you say that your firm's expertise is overlapping with your partners? To what extent do the employees of your firm share a similar knowledge structure with your partner?	IT Executive of Focal Firm Project Manager of Focal Firm
Strategic Intent	What does your firm want to gain from this partnership? When you were making the outsourcing decision, was learning an important determinant?	IT Executive of Focal Firm
Knowledge Acquisition	Aside from the services your firm got from the partner firm, do you think that your firm gained anything else? Do you think that your firm obtained knowledge that you did not possess before? What is the knowledge that you firm gained?	IT Executive of Focal Firm Project Manager of Focal Firm
Combinative Capabilities	Do you think that your firm has a strong capability of integrating new knowledge with the existing knowledge? How would you describe your firm's ability to utilize technology?	IT Executive and Business Executive of Focal Firm
IT Value	How would you describe the benefit of the IT outsourcing service you received from the partner? How would you describe the overall outcome of the project? Does this partnership help you achieve your pre-specified goals? Would you please describe the innovations generated from the IT outsourcing partnership, if there is any?	Project Manager of Focal Firm

5.1.1 IT Outsourcing at COSCON

COSCO Container Lines Co., Ltd. (COSCON) is a company that specializes in domestic and international container transportation. Operating over 60 international shipping routes connecting more than 100 ports in over 30 countries and regions across the world, COSCON is the biggest container carrier in China and ranks among the top liners in the world. Mr. Ma, CIO of COSCON, talked about his understanding of IT outsourcing and the history and future of IT outsourcing at COSCON.

Mr. Ma says that Chinese firms have a different understanding of IT outsourcing from the firms in the U.S. U.S. firms outsource to reduce cost, and IT is becoming a utility service that can be obtained from outsourcing service providers at a lower cost. However, a lot of Chinese firms are obtaining outsourcing services from established foreign firms, which charge premium prices for services provided. Therefore, cost reduction is not the major motivation for IT outsourcing for most Chinese firms.

COSCON uses IT outsourcing as a strategic vehicle to develop its own IT capabilities and skills. According to Ma, development of IT capabilities was achieved through different phases. When COSCON was founded in 1998, the IT staff did not have the expertise to develop required systems in-house. Therefore, COSCON started to use IBM for its MIS and SAP for its ERP system in 2000. During the implementation processes, COSCON obtained the products, implementation services, and staff support from the outsourcing service providers, but had the system customization done by internal IT staff. The internal IT staff gained familiarity with the systems and developed required skills and knowledge about the systems during the customization processes. By 2003, the number of COSCON IT employees reached 160, compared with 30 in 2000. Among them, 70 worked in the IT R&D

area, which focused on the internal development of information systems and provision of IT services.

As the internal IT employees became more capable and knowledgeable about the systems, COSCON adjusted its IT outsourcing strategy to a more selective one. Now it keeps the lower-level IT services such as programming and maintenance in house, while outsourcing the value-laden, enterprise-wide IT services to a couple of strategic IT partners. COSCON maintains close relationships with its strategic IT partners, and constantly communicates with them about its business plans and strategies, which are driven by COSCON's business needs. COSCON is very selective about the functions that are outsourced to the strategic IT partners. The corporate guideline is to outsource implementation of software packages while retaining the development and adaptation of customized modules in-house. This IT outsourcing strategy enables COSCON to utilize its specialized knowledge in the logistics and transportation industry, and keep up with the cutting-edge technologies to improve IT services. "We use this strategy to obtain knowledge and skills from our IT partner, and develop stronger industry-specific knowledge about IT", says Ms. Ma. The goal of the IT department is to best serve the business needs of COSCON, provide enterprise-wide IT services, and devote time to R&D in new IT services that can be deployed by the organization.

Now COSCON uses IT-BAT (Business Analysis Team), a virtual system to identify the business needs and find the best technological solution for them. It has also established a mechanism for outsourcing contract management, service provider evaluation, relationship management, and internal auditing, and maintains frequent communications between business departments and the IT department at all levels. As a result of the IT outsourcing

strategy, COSCON has benefited with increased profits and more efficient business operations. In addition, the IT department is playing a more important role in the organization. IT has enabled radical changes in COSCON's traditional business, and provided more opportunities for new business forms.

5.1.2 GD Post Office: Value Creation through IT

GD Post Office is a state-owned, provincial organization that operates as any other for-profit business organization. Before being spun off from GD Post & Telecom in 1998, GD Post had been operating on deficit for years, and provided limited postal services with poor quality. The financial problems of GD Post became more obvious when it could no longer use GD Telecom's profits to cover its deficits after the spin-off. The imminent financial pressure pushed GD Post to carry out a series of business reengineering activities, including IT-enabled new services and business models. Mr. Zeng, Director of Enterprise IT Planning at GD Post, with great enthusiasm and pride, narrated the rejuvenation process of GD Post during our meeting in the GD Post office building in the central business district of Guang Zhou.

The reengineering process of GD Post started with increased investments in assets that are essential for the provision of postal services. Starting from 1998, GD Post has invested over 30 billion RMB to improve its assets, especially technological assets, and developed a business reengineering plan in which core competency and technology go hand-in-hand.

Right after the spin-off, GD Post started to build its own IT unit to support the business areas. Two subdivisions (IT Planning & Design Institute and Information Division) were subsequently established to provide IT support, maintenance, and system development

services to GD Post. IT investments were madeto build a technological platform of IT infrastructure that enables telecommunication, broadband, and video-conferencing. At the same time, GD Post heavily deployed information technologies to improve its traditional businesses and provide new services. In addition to automation and computerization of the front-end postal services, GD Post undertook revolutionary efforts in new business areas. Specifically, it developed three new businesses: financial services (payment system), telephone banking, and electronic commerce. GD Post recognized the upsurge of dot-coms and e-commerce in the late 1990s as a business opportunity, and the utilized its logistic facilities and distribution networks to develop e-commerce-based services. The concept of "logistics-based e-commerce" has great impact on other postal service offices nationwide, and has fundamentally changed the way that GD Post runs business. Mr. Zeng says, "GD Post did not gain competitive advantage through the World Wide Web, but through our core competency—the mail distribution networks!" The combination of the World Wide Web and GD Post's core competency allows it to provide around-the-clock services. In addition to its traditional postal services, GD Post now processes orders online and provides delivery services for flight tickets, flower and special gifts, AVON direct-selling products, built-to-demand Lenovo PCs, and even passports. All of these services are enabled by an award-winning software system developed in-house.

Mr. Zeng and his colleagues have adopted a very selective IT outsourcing strategy. For information systems and IT functions that are closely related to its core business, GD Post keeps system development and maintenance in-house. On the other hand, it carefully chooses outsourcing partners for performing more generic IT functions such as call centers, IT infrastructure, and programming. For example, GD Post developed the structure and data

dictionary of its logistic information system in-house, and had the IT unit integrate this system with other systems within the organization. Detailed programming for the logistic information system was outsourced. Because logistic services rely heavily on information technologies and require very context-specific knowledge, a widely accepted system that is ready to be adopted does not exit. "Due to the lack of standards and protocols to follow in this industry, it is not easy to outsource logistic-related IT functions. We have to develop and customize our own systems", says Mr. Zeng. In addition, the less developed IT outsourcing market and lack of business integrity are major concerns when GD Post formulates its outsourcing strategy.

Seven years after the spin-off, GD Post is making considerable profits with an innovative, award-winning business model that combine traditional mail delivery services and new services enabled by information technology. "IT is not the only thing that made the revival of GD Post possible, but it definitely has been a catalyst and enabler", says Mr. Zeng.

5.1.3 Summary of Cases

The interviews with IT executives at these two firms provide some preliminary evidence of the relationship between knowledge and value creation in the proposed research model. The COSCON case confirms that IT outsourcing can be used to obtain knowledge and skills from outside. In addition, the cumulative knowledge and skills can be used to develop in-house IT capabilities. The GD Post case highlights the importance of industry- and business-specific knowledge as well as information technologies in the value creation process. GD Post has done an especially good job in utilizing IT to strengthen its core competency and develop new services. In the sections that follow, I further test the proposed research model using a survey methodology.

5.2 SURVEY METHODOLOGY

I conducted an empirical test of the proposed research model with a larger sample using a survey methodology. The research design, sampling methodology, and data collection procedures of the empirical study are discussed below.

5.2.1 Overview of Research Setting and Procedures

Data to test the research model was gathered from firms in China. This research was conducted in cooperation with the National Informatization Evaluation Center of China (NIEC) during a three-month period starting from March 2005. NIEC, an affiliation of the Ministry of Information, is dedicated to research and consultancy in diffusion and evaluation of information systems in government and businesses. Based on its research and evaluation metrics, NIEC publishes iPower500 annually, a list of organizations nation-wide that best utilize information technologies in the fields of IS planning, decision support, business processes, and electronic business. This project provided a unique opportunity to administer a survey to over 300 iPower500 organizations and their IT outsourcing partners in about two dozen provinces/districts in China. For each organization and its IT outsourcing partner, data were collected through a detailed questionnaire using a cross-sectional design. A key informant from each organization responded to the questionnaire. Two research associates at NIEC assisted in contacting sample firms and administering returned questionnaires. I describe detailed research procedures and sample characteristics below.

5.2.2 Sampling Procedures

Ideally, target sample firms of this study should be large firms that (1) use information technology in business operations to a great extent, and (2) outsource at least one IT project that has extensive impact at the enterprise level. Based on these criteria, I used a

convenience sampling technique for data collection, and selected sample firms from the 2004 iPower500. Since the iPower500 firms are mostly large state-owned or private firms that efficiently utilize information technology in their business operations, the probability that these firms use outside service provider to perform IT functions is much higher than a general population. In addition, large and well-established firms are more likely to have financial resources to deploy large-scale information technologies that will have enterprise-wide impacts. The NIEC assessment schemes and evaluation metrics had been refined since their first publication of iPower500 in 2002, and the 2004 iPower500 list represents the most up-to-date snapshot of IT competition among Chinese firms.

The 2004 iPower500 list consists of business organizations in industries such as manufacturing, financial services, software and technology services, transportation and logistics, mining, and construction. Consistent with the industry structure of a developing country, about 80% of the iPower500 organizations are in sectors of the manufacturing industry.

Sample firms were selected in two phases. In early March 2005, I selected sample firms from the first 300 organizations in the 2004 iPower500 list. In early April 2005, I used organizations ranked from 301 to 500 as the second batch of the entire sample. The purpose of dividing the sampling phases into phases was to work on a sample of a manageable size in a period of time.

5.2.3 Contact Protocol

This study was conducted using a cross-sectional survey methodology. The purpose was to collect matched-pair data from both client firms and their corresponding IT outsourcing partners. Therefore, the data collection process involved two phases. In Phase

1, I distributed the client-version of the questionnaire to the key informant of each iPower500 firm via email. In the survey, I provided a specific definition of IT outsourcing, and asked the key informant to specify a particular IT outsourcing project accordingly. At the end of the questionnaire, I also asked the key informant to provide the contact information of a key informant at the corresponding outsourcing partner firm. The NIEC research associates and I sent email reminders and make phone calls to confirm the email delivery of questionnaires at least once every week about 2 weeks after the questionnaires were sent out. The client version of the questionnaire is shown in Appendix 2.

In Phase 2, based on the contact information provided by the key informant at the client firm, I sent the vendor-version of the questionnaire to the key informant at the IT outsourcing partner of the client firm. In each email sent to the key informant at the vendor firm, I mentioned the source where I obtained the contact information and explained the purpose of this research project. Follow-up phone calls were made one week after the questionnaire was sent out. The vendor version of the questionnaire is shown in Appendix 3.

A majority of the returned questionnaires are in the format of Word documents as email attachments. A couple of questionnaires that could not be opened properly were printed out by the respondents, and faxed to the NIEC office.

I chose to use electronic mail and telephone as the major communication channel for two reasons. First, electronic mail and telephone is the most rapid way of communication, given the time constraints of the project. The goal of data collection was to get responses from both client and vendor firms within a three-week period. Second, I considered electronic mail a more reliable approach of communication than the traditional postal services in China. With electronic email, I could avoid delays due to lost mail or address

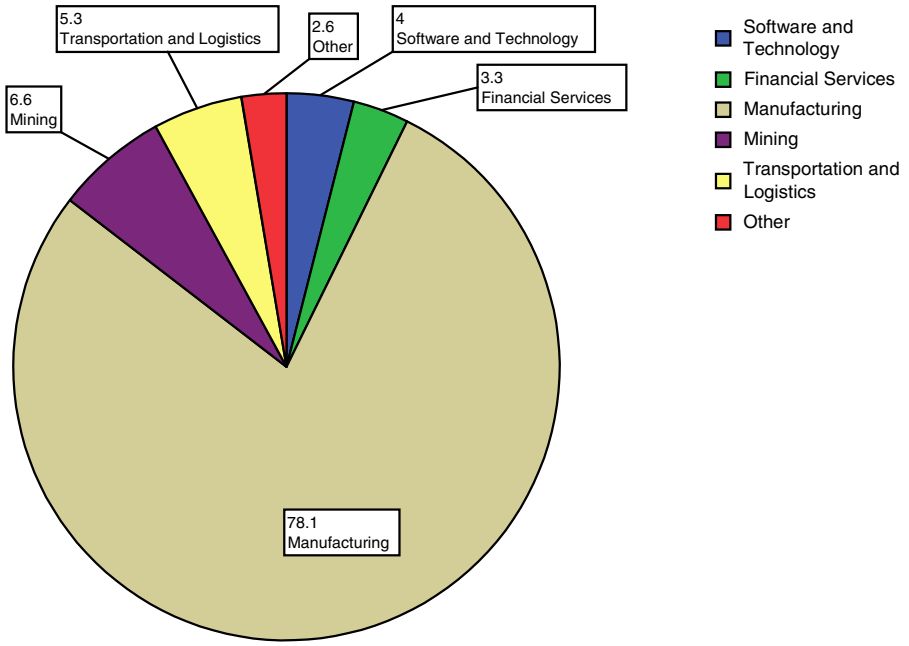
changes. Data collection via email turned out to be successful. I received returned questionnaires as email attachments within as short a period as 24 hours after the first emails were sent out. In addition, I was able to quickly get in touch with respondents who had changed contact information.

5.2.4 Respondents: Client Firms

Among the 500 iPower firms, I eventually used 367 firms that had valid contact information of the key informants. I visited 4 organizations to conduct on-site interviews with the CIOs, so they were not included in the survey sample. I was not able to get in touch with the contact persons of 9 firms. Of the remaining 354 firms, 44 were not able to provide valid information because they did not outsource IT at all, and 42 firms declined to participate due to tight work schedules, concerns of data confidentiality, different understanding of IT outsourcing, etc. A total of 160 organizations returned questionnaires, with a response rate of 45.2%. I further eliminated responses of 9 firms due to missing data, yielding a final sample of valid and usable responses of 151 (a 42.7% response rate).

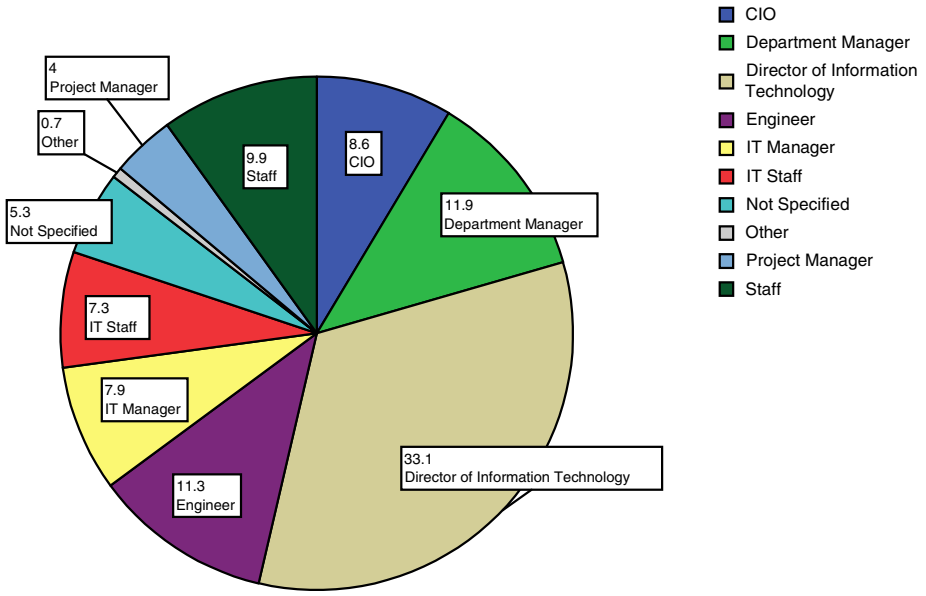
The final sample consists of firms in a variety of industries. As shown in the Figure 2, more than three quarters of the sample firms are in the manufacturing sector, which is consistent with the industry distribution in the 2004 iPower 500 firms.

Figure 2: Industry Composition of Sample Firms



The key informants of the client firms include CIOs, director of information technology, IT manager, IT staff, project manager, manager or staff of non-IT departments. As shown in Figure 3, 50% of the respondents work at the top or middle management level in the IT area. It is reasonable to believe that most of these respondents are actively involved in the IT outsourcing projects and therefore were able to respond to the questionnaire with relatively accurate answers.

Figure 3: Profile of Key Informants



Due to the convenience sampling strategy, most of the sample firms are large firms, according to the criteria (i.e., number of employees and annual sales revenue) posted by the National Bureau of Statistics of China. The sample firms, however, do vary in terms of number of full-time IT employees. As shown in Figure 4, about 78% of the firms have 50 or less full-time employees. Of the 125 firms that provided financial information in the past three years (2002-2004), 45% have an average IT budget below 5 million RMB, 45% have an average IT budget between 5 million and 50 million RMB, and 6% have an average IT budget more than 1 billion RMB. One hundred and forty-one firms responded to the question about their scale of IT outsourcing. As shown in Figure 5, about 60% of the 141

firms with valid responses outsource 50% or more IT functions, indicating a high propensity of the sample firms to use IT services from outside.

Figure 4: Number of Full Time IT Employees

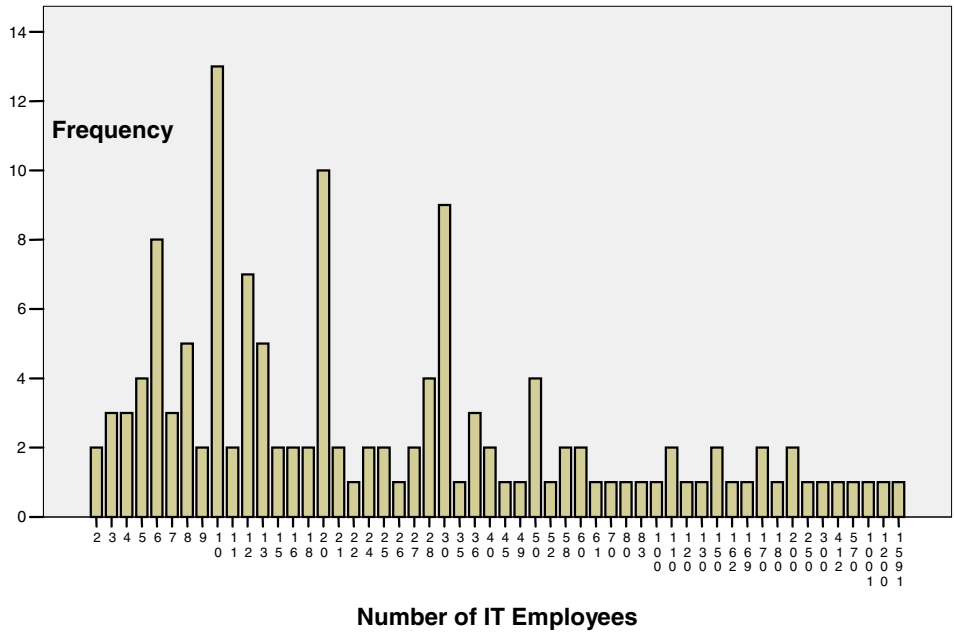
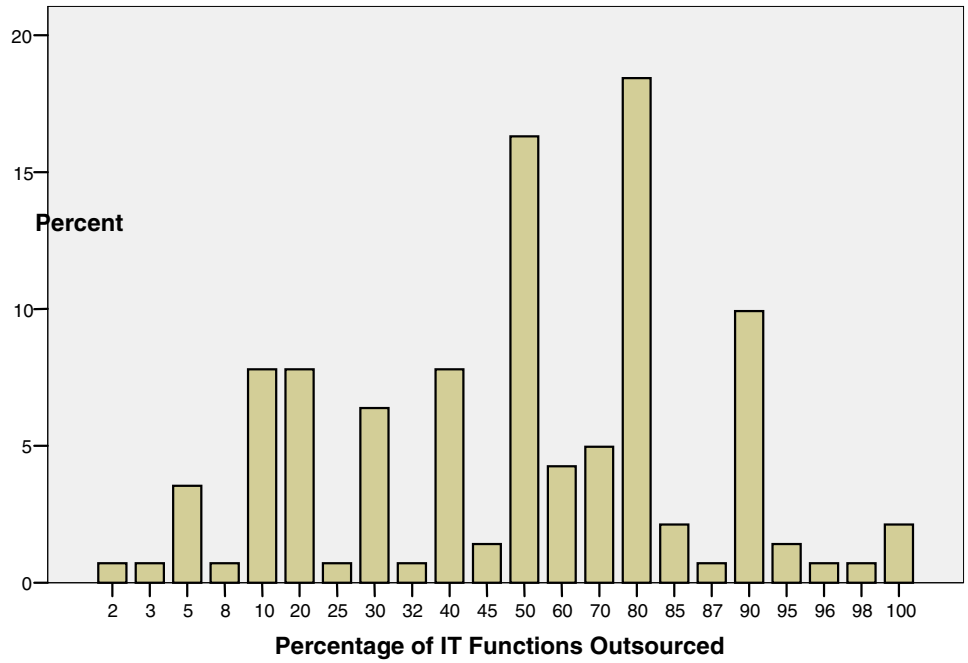


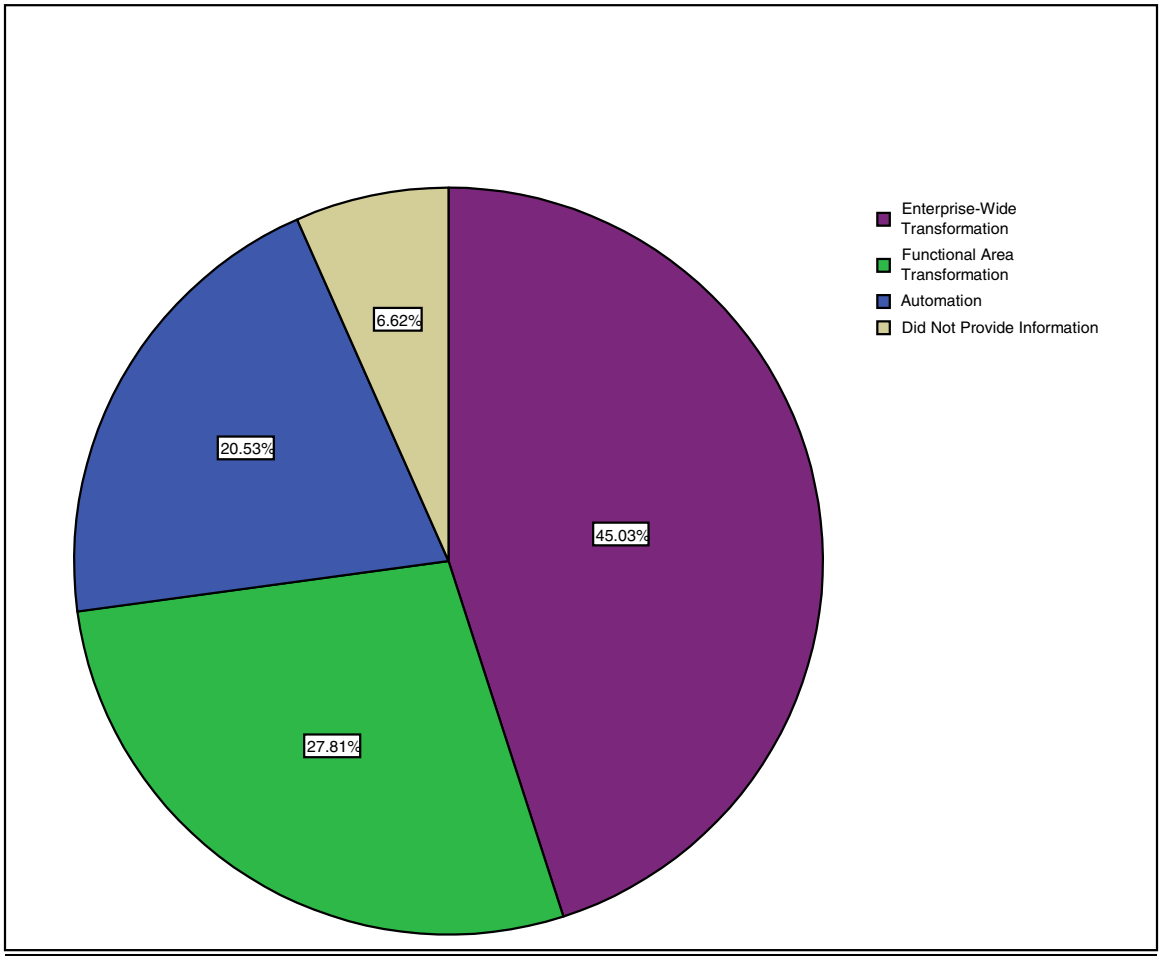
Figure 5: Scale of IT Outsourcing



In the questionnaire, I asked the respondents to answer questions with regard to the history of the relationship between the client and the vendor, IT spending, scale of IT outsourcing, and characteristics of the IT outsourcing contract. Of the 151 firms in the sample, about 46% had engaged with the IT outsourcer in previous a business relationship. The IT outsourcing projects specified by the respondents can be categorized as: (1) enterprise-wide transformation, (2) functional area transformation, and (3) automation. Examples of IT outsourcing projects in the first category include ERP, CRM, and CIS projects that will have extensive impact on all units within an organization. Information systems that are implemented to change business processes of specific functional areas such as human resources, finance and accounting, and manufacturing processing are considered as projects in the second category. The third category of IT outsourcing project does not require

significant changes in business processes and employee participation, therefore yielding the least impact at the organizational level. Examples of IT outsourcing projects in this category include office automation, data integration, web and PC maintenance, and help desk. Among the 151 firms, 45% had enterprise-wide transformation IT outsourcing projects, 28% had functional area transformation IT outsourcing projects, and 21% had automation IT outsourcing projects (see Figure 6). Although this study started with an intention to examine IT outsourcing projects that were more transformational in nature, responses from the full sample do not fully satisfy this requirement. However, over three quarters of the sample reported on projects that are consistent with high impact, transformational outsourcing.

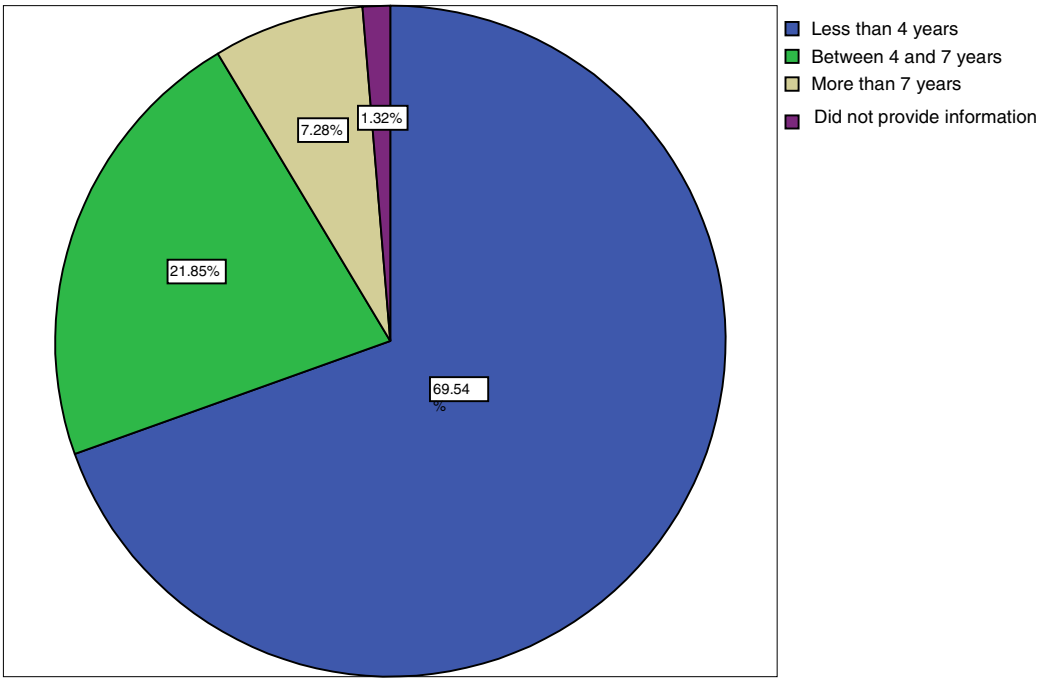
Figure 6: Nature of IT Outsourcing Project



The respondents also answered questions about how much of the IT function was outsourced to this particular IT outsourcer and how much the project accounted for the annual IT spending. About 74% of the 133 firms that responded to this question outsourced up to 50% of IT functions to the specific IT outsourcer. Correspondingly, about 80% of the 135 firms spent up to 50% of the annual IT spending on the specified IT outsourcing project. Such evidence indicates a reasonably close relationship between the client firm and its vendor, without the significant presence of a lock-in scenario.

A majority of the firms (70%) had signed IT outsourcing contracts that had an expected duration of less than 4 years (see Figure 7). At the time of the study, about 80% of the firms were less than 4 years into the contract terms, whereas some other firms had been involved with their vendors in an extended duration as long as a decade (see Figure 8). This indicates that firms wanted to start with a shorter, more flexible contract term to get to know the vendor better. When the relationship goes on well for both parties, they tend to renegotiate the contract and extend their relationship to a longer term.

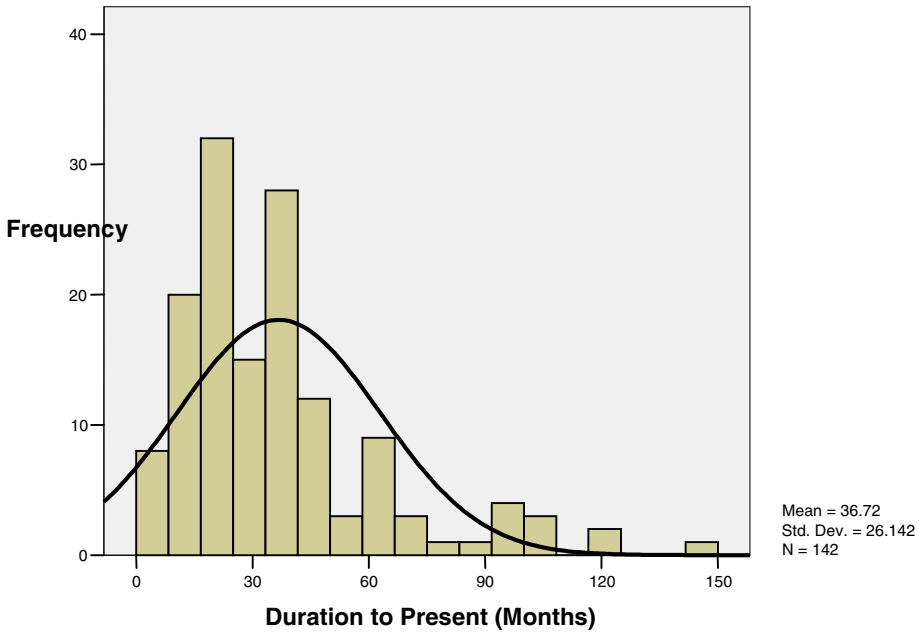
Figure 7: Expected Duration of Current Contract of IT Outsourcing Project



5.2.5 Respondents: Vendor Firms

Of the 151 client firms that provided valid and useful responses, 5 firms explicitly declined to provide contact information of the key informant at their vendor firms. Eventually, I received responses from vendors of 79 firms (a vendor response rate of 54.1%).

Figure 8: Duration to Present of Current IT Outsourcing Contract



The summary of vendor information suggests that the IT outsourcing market in China is served by a variety of players. Although several local IT service providers (such as UFSoft, King Dee, and Hand China) and a couple of foreign players (such as IBM, Bearing Point, and HP, Oracle, and SAP) appear to be more popular to the client firms, none have a dominant market presence. In addition to the general IT solution providers, several vendors in the sample have specialized expertise in particular industries. For example, Shanghai Baosight, a spin-off of the Bao Steel Group, has extensive knowledge about IT in the steel manufacturing industry and had provided outsourcing services to other steel mills in China. A profile of IT outsourcing service providers of the sample firms is summarized in Table 8.

Table 8: Profile of IT Outsourcers (N=141)

Vendor	Frequency	Percent
UFSoft	19	13.5%
IBM	9	6.4%
King Dee	7	5%
Hand China	5	3.5%
Hanpu	4	2.8%
Langchao Software	4	2.8%
Lenovo	4	2.8%
Botone	3	2.1%
Shanghai Baosight	3	2.1%
Bearing Point	2	1.4%
CAS Chengdu	2	1.4%
Donghua Hechuang	2	1.4%
HP	2	1.4%
Oracle	2	1.4%
SAP	2	1.4%
Shanghai Sipu	2	1.4%
Zhongke Software	2	1.4%
Others	67	47.5%
Total	141	100%

The key informants on the vendor side appeared to be more willing to share information. Compared their counterparts who usually responded in 10 to 14 days or even longer, most of the vendor informants responded to the questionnaire within a week. A majority of the vendor informants were project managers of IT outsourcing projects.

5.2.6 Late Response Bias and Non-Response Bias

The length of time that firms took to respond to the questionnaire varied from one day to several weeks. In addition, I did not get responses from the vendors of some firms. Therefore, to detect the possibility of late-response bias or non-response bias in the client firms, I used one-way ANOVA analyses to compare the means of all variables across sub-samples. The first ANOVA analysis was performed to compare firms that responded within 2 weeks with those that responded in more than 2 weeks. ANOVA results in Table 9 suggest that firms that responded to the survey late were not significantly different from those that

responded early on most of the variables, except for the *success in business operations*. This indicates that more successful firms tended to respond early, perhaps because they were more willing to disclose their success. The second ANOVA analysis was performed to compare client firms that had vendor responses with those that did not have vendor responses. As shown in Table 10, firms in the two subgroups were significantly different on the variables *trust* and *learning intent*. This indicates that client firms that had greater trust in the vendor and learning intent were more willing to share information about their outsourcing relationships with the vendor.

Table 9: ANOVA Results to Test Non-Response Bias Based on Response Time (N=151)

Variable		Sum of Squares	df	Mean Square	F	Sig.
IT Outsourcing Experience	Between Groups	.237	1	.237	.338	.562
	Within Groups	104.680	149	.703		
	Total	104.917	150			
Role of IT	Between Groups	.256	1	.256	.414	.521
	Within Groups	92.287	149	.619		
	Total	92.543	150			
Partner Resource Endowment	Between Groups	.074	1	.074	.133	.716
	Within Groups	83.520	149	.561		
	Total	83.594	150			
Social Interaction	Between Groups	.225	1	.225	.465	.497
	Within Groups	72.076	149	.484		
	Total	72.300	150			
Trust	Between Groups	.001	1	.001	.002	.963
	Within Groups	58.946	149	.396		
	Total	58.947	150			
Shared Vision	Between Groups	.658	1	.658	1.073	.302
	Within Groups	91.390	149	.613		
	Total	92.049	150			
Shared Cognition	Between Groups	.189	1	.189	.267	.606
	Within Groups	105.221	149	.706		
	Total	105.410	150			
Learning Intent	Between Groups	.143	1	.143	.199	.656
	Within Groups	106.562	149	.715		
	Total	106.705	150			
Knowledge Acquisition	Between Groups	.000	1	.000	.000	1.000
	Within Groups	59.520	149	.399		
	Total	59.520	150			
Combinative Capability	Between Groups	.947	1	.947	2.346	.128
	Within Groups	60.123	149	.404		
	Total	61.070	150			
Success in Business Operations	Between Groups	3.134	1	3.134	7.504	.007***
	Within Groups	62.233	149	.418		
	Total	65.368	150			
Success in Innovation	Between Groups	.089	1	.089	.178	.673
	Within Groups	74.612	149	.501		
	Total	74.701	150			

***: Significant at α=.01; **: Significant at α=.05; *: Significant at α=.10
Responded within 2 weeks: n=67
Responded after 2 weeks: n=84

Table 10: ANOVA Results to Test Non-Response Bias Based on Vendor Response (N=151)

Variable		Sum of Squares	df	Mean Square	F	Sig.
IT Outsourcing Experience	Between Groups	.852	1	.852	1.220	.271
	Within Groups	104.065	149	.698		
	Total	104.917	150			
Role of IT	Between Groups	.337	1	.337	.545	.462
	Within Groups	92.206	149	.619		
	Total	92.543	150			
Partner Resource Endowment	Between Groups	.008	1	.008	.014	.907
	Within Groups	83.587	149	.561		
	Total	83.594	150			
Social Interaction	Between Groups	.829	1	.829	1.728	.191
	Within Groups	71.472	149	.480		
	Total	72.300	150			
Trust	Between Groups	1.749	1	1.749	4.557	.034**
	Within Groups	57.198	149	.384		
	Total	58.947	150			
Shared Vision	Between Groups	1.150	1	1.150	1.644	.202
	Within Groups	104.259	149	.700		
	Total	105.410	150			
Shared Cognition	Between Groups	452.035	1	452.035	1.069	.303
	Within Groups	63008.759	149	422.878		
	Total	63460.795	150			
Learning Intent	Between Groups	2.184	1	2.184	3.114	.080*
	Within Groups	104.521	149	.701		
	Total	106.705	150			
Knowledge Acquisition	Between Groups	.331	1	.331	.833	.363
	Within Groups	59.189	149	.397		
	Total	59.520	150			
Combinative Capability	Between Groups	.900	1	.900	2.229	.138
	Within Groups	60.170	149	.404		
	Total	61.070	150			
Success in Business Operations	Between Groups	.414	1	.414	.950	.331
	Within Groups	64.953	149	.436		
	Total	65.368	150			
Success in Innovation	Between Groups	.263	1	.263	.527	.469
	Within Groups	74.438	149	.500		
	Total	74.701	150			

**: Significant at α=.05; *: Significant at α=.10
Firms with vendor response: n=79
Firms without vendor response: n=72

5.3 OPERATIONALIZATION OF CONSTRUCTS

Survey items were developed based on a literature review and interviews with a half dozen IT outsourcing project managers. I used both sets of responses to refine construct measures that examine dimensions of social capital, knowledge acquisition, and success of IT outsourcing. All constructs were measured using multiple items. The original instrument was pilot tested with a small sample of subjects (5 IT outsourcing project managers and 6 doctoral students). Based on feedback provided by the pilot test subjects, I dropped the items that were originally intended to measure the construct *trust* because they were viewed as being too general, and replaced them with items that were more relevant and more specific in a partnership context. In addition, survey items that were used to measure long-term IT capabilities were dropped and were replaced by items that measure more tangible outcomes such as *success in business operations*. I also rephrased some other items that were ambiguous to the respondents. I translated the refined questionnaire into Chinese, and conducted a second pilot test among 11 firms in China. I used feedback from the second pilot test and obtained alternative opinions on the translation to make sure that there was no confusing wording in the final questionnaire. Except for questions about details of the IT outsourcing project, most of the survey items utilized a seven-point Likert scale to indicate the respondent's level of agreement with each statement. Constructs in the research model are summarized in Table 11, and detailed scales and descriptions of each construct are summarized in Appendix 5.

Table 11: Operationalization of Research Variables

Variable	Measurement	Source
Structural Dimension of Social Capital	Reputation and material capital possessed by partner	Adapted from Hitt et al (2000) and Stuwart (2000)
	Willingness of partners to reciprocate in information exchange	Adapted from Lee et al (1999)
Relational Dimension of Social Capital	Mutual respect and friendship that reside at multiple levels between partners	Adapted from Kale et al (2000) and Yli-Renko et al (2001)
	Expectation that alleviates the fear that one's exchange partner will act opportunistically	Adapted from Carson et al (2003)
Cognitive Dimension of Social Capital	Extent to which partners have common beliefs and understanding regarding the importance of motives, goals, and objectives.	Adapted from Tsai et al (1998) and Young-Ybarra et al (1999)
	Knowledge structure held by partners that enable them to form accurate explanations and expectations for the task, and in turn, coordinate their actions and adapt their behavior to demands of the task and other team members	Adapted from Carson et al (2003)
Learning Intent	Propensity to view the partnership as a strategic vehicle to internalize knowledge and capabilities from external sources	Adapted from Lei (1997) and Parise et al (2001)
Knowledge Acquisition	Extent of various types of knowledge acquired	Adapted from Bassellier et al (2003), Kale et al (2000), and Simonin (1999)
IT Outsourcing Success	Level of fitness between the firm's economic goals and outsourcing outcomes	Adapted from Lee et al (1999)
	Extent to which development in new products/services and/or new markets is enabled by the use of IT	Adapted from Tallon et al (2003)
IT outsourcing experience	Propensity and extent to which the firm practiced IT outsourcing in the past years	Self-developed
Role of IT	The role that IT plays in daily operation and business strategy of a firm	Adapted from Grover et al (1994b)

5.3.1 Structural Dimension of Social Capital

The structural dimension of social capital was measured by two scales representing *resource endowment of partner* and *information reciprocity between partners*. *Resource endowment of partner* measures the characteristics of the outsourcing partner in terms of social and material capital possessed by it. Six items were developed for this study, based on the elaboration of scales used to measure partner reputation by Hitt et al (2000). These items focused on the partner reputation accrued from expertise, experience, service, and social status. *Information reciprocity* reflects structure of information flow in the partnership, i.e., willingness of partners to reciprocate in information exchange. I used four items adapted from Lee et al (1999) to measure the extent of participation and communication in the relationship.

5.3.2 Relational Dimension of Social Capital

The relational dimension of social capital, manifested as assets created and leveraged through relationships, was measured by two scales representing *trust* and *social interaction*. Based on the definition that *trust* is a type of expectation that alleviates the fear that one's exchange partner will act opportunistically, I did not use previously used items that measured trust in a more general sense. Instead, I adapted items developed by Carson et al (2003) that measures trust in a partnership context in greater depth. Specifically, these items measure to what extent one entity expect its partner to act benevolently when opportunities arise. *Social interaction* measures mechanisms that sustain social relationships between partners at all levels. Items were adopted from Kale et al (2000) and Yli-Renko et al (2001), and focused on mechanisms such as personal interaction, mutual respect, friendship, trust, and reciprocity.

5.3.3 Cognitive Dimension of Social Capital

The cognitive dimension of social capital is manifested as resources providing shared representations, interpretations, and systems of meaning among parties. In this study, the cognitive dimension of social capital was measured by two scales: *shared vision* and *shared cognition*. A *shared vision* facilitates a common understanding of collective goals and common beliefs regarding the importance of motives and goals of the partnership. In this study, *shared vision* was measured by items adapted from Tsai et al (1998) and Young-Ybarra et al (1999). These items focused on ambition, enthusiasm, motive, and proper action shared between partners. *Shared cognition* represents the extent to which a partner's knowledge structure enables it to form accurate explanations for joint tasks and to coordinate its actions with its partner. I adapted items developed by Carson et al (2003) and Tippins et al (2003) to measure similarity between prior experience of employees at one partner and the nature of the other partner's job.

5.3.4 Knowledge Acquisition

In this study, *knowledge acquisition* reflects the incremental stock of knowledge in three areas: *technical*, *business*, and *networking*. *Knowledge acquisition* was measured by adapting established items from several studies (Bassellier et al. 2003; Kale et al. 2000; Simonin 1999) as well as new items. These items focused on whether the client firm had acquired new knowledge or information with regard to technology, business processes, and the capability to manage partnerships.

5.3.5 IT Outsourcing Success

Firms outsource IT functions to realize IT value—cost savings, customer satisfaction, or business process improvement—through the introduction of new technologies or new

processes (Smith et al. 2003), which requires the employees to work differently, learn new skills, and develop new understanding of how and where information, technology and people fit together (Chircu et al. 2000). Therefore, knowledge plays an important role in facilitating value realization. Although knowledge is widely considered as the underlying force of ultimate business success, it has been neglected in prior IT outsourcing research. Knowledge acquired from outsiders through IT outsourcing can not only bring direct benefits in business (Lee 2001; Lee et al. 1999) such as cost reduction and economies of scale in human and technological resources, but also lead to IT-enabled innovation (Tallon et al. 2000). In this study, I adapted items from Lee et al (1999) to measure direct success of IT outsourcing in business operations. The measures of IT-enabled innovation, specifically focused on value, quality, design, and support of new products/services, were adapted from Tallon et al (2000).

5.3.6 Moderating Variables

In the proposed conceptual model, there are two moderating variables: *learning intent* and *combinative capability*.

Learning intent, defined as the propensity to view the partnership as a strategic vehicle to internalize knowledge and capabilities from external sources, was measured by items adapted from Lei (1997) and Parise et al (2001) as well as new items. These items focused on the extent to which the client firm expected to learn from its partner.

Combinative capability measures a firm's capabilities to synthesize and apply existing and acquired knowledge. I developed new items based on the measures of combinative capability proposed by Van den Bosch et al (1999), focusing on a firm's system capabilities, coordination capabilities, and socialization capabilities (Van den Bosch et al. 1999).

5.3.7 Control Variables

In any study, it is important to control for variables that may affect the relationships in the research model, in order to eliminate any extraneous noise in the relationships. I also want to control any variables that might otherwise explain the predicted relationships between the independent variables and the dependent variables. Specifically, I expect that more *IT outsourcing experience* would make the client firm more familiar with the IT outsourcing processes; therefore, the client firm would be better able to acquire knowledge from an outsider and obtain successful outcomes from IT outsourcing. Items that measured *IT outsourcing experience* were developed based on items used in previous IT outsourcing studies. The *role of IT* in an organization plays an important role in IT functions outsourced. Grover et al (1994) found a significant moderating effect of role of IT on the relationship between resource gap and the decision to outsource. I expect that when IT plays a more strategic role in the organization, the organizations tends to utilize IT to achieve higher level goals. Items for *role of IT* were developed based on the definition and categorization by Grover et al (1994). I also use *industry* as a control variable to examine if there is any industry specific difference in the sample.

5.4 DATA REDUCTION AND SCALE VALIDATION

The measurement model was tested by examining discriminant validity, the internal consistency of constructs, and the reliability of individual items.

5.4.1 Exploratory Factor Analysis: Test of Discriminant Validity

The psychometric properties of all scales were established using factor analysis and test for reliability. First, I performed exploratory factor analyses with SPSS, using the principal component technique for factor extraction and Varimax rotation. Factor analyses

were performed for two subsets of data: one with client responses and all other variables, and the other with vendor response and all other variables. After several iterations of item elimination, the analysis extracted 12 factors with Eigenvalues greater than 1 (see Table 12) that together explained about 73% of the variance. I was able to obtain a similar factor pattern of items when I performed factor analysis on the vendor response items and items of all other variables (see Table 13). As shown in Table 12 and Table 13, each item loads more strongly on its corresponding construct than on other constructs in the model, indicating discriminant validity. In Appendix 5, items that were dropped as a result of factor analysis are marked with asterisks. The last two items of *success in innovation* cross-loaded on a second factor. Although this factor was not proposed in the original model, the two items that loaded on this factor are both related to the detection of new market trends and consumer's needs, which can as well be considered a form of innovation. The market trends related factor was listed in Table 13 for clarification purpose, but it was not used in the analyses that followed. All items for *information reciprocity* were dropped due to the lack of clean loading.

Table 12: Exploratory Factor Analysis Results—Client (N=151)

ITEMS	INNOSUC	KNOW	COMBCAP	ITROLE	TRUST	LI	RSENDOW	VISION	RELAT	COGN	OSEXP	BUSSUC
suc15	.861	.130	.029	.183	.066	.103	.099	.164	.029	.016	.084	-.024
suc16	.825	.154	.170	.202	.048	.094	.074	-.004	.122	-.035	.090	-.068
suc18	.779	.154	.065	.038	.195	-.052	.122	-.039	.039	.116	.067	.213
suc17	.766	.163	.199	-.014	.107	-.026	.148	-.161	.137	.025	.070	.172
suc13	.748	.289	.080	.105	.052	.118	.017	.135	.001	.195	-.044	.015
suc14	.747	.167	.133	.127	-.151	.152	.156	.080	.150	.101	.137	.002
suc11	.684	.249	-.017	.125	.065	.002	.117	.231	.184	.098	.074	.234
suc12	.641	.244	.180	.249	.080	.173	.085	.234	-.038	-.012	.120	.127
suc8	.527	.301	.212	.200	.111	.104	.035	.070	.247	.028	-.002	.088
tknow5	.239	.815	.071	.050	.266	.103	.033	-.009	.021	.013	-.007	-.003
bknow2	.211	.737	.062	.083	.045	.080	.029	.142	-.009	.108	.135	.174
tknow4	.276	.716	.166	.009	.122	.207	.090	.031	-.025	.026	.094	.098
bknow3	.260	.692	.182	.138	.011	-.129	.068	.151	.045	.199	.096	.186
bknow1	.356	.684	.071	.058	.121	.272	.057	.197	.159	.084	.013	-.107
tknow6	.175	.612	.021	.076	.073	.420	.273	-.074	.163	-.147	.012	-.018
nknow3	.326	.494	.156	.177	.018	.213	.023	.231	.313	.141	.078	.141
combcap3	-.012	.098	.852	.135	.047	.019	.007	.164	-.032	.106	.106	.095
combcap1	.091	.099	.752	.069	.002	.182	.060	.057	.091	.281	.064	.012
combcap2	.194	.047	.752	.107	.121	.143	.065	.146	-.017	.177	-.007	.036
combcap4	.214	.149	.700	.260	.048	-.003	.112	.078	.136	.093	-.020	.111
combcap6	.314	.134	.669	.181	.108	.115	.038	.065	.137	.020	.161	.064
itrole1	.094	-.003	.106	.831	.081	.120	.104	.088	-.042	-.028	.116	.172
itrole2	.182	.051	.083	.791	.162	.018	.087	.037	.033	-.009	.048	.085
itrole3	.222	.074	.185	.739	.155	.062	.070	.033	.073	.083	.089	.083
itrole6	.093	.142	.174	.649	.134	.042	.107	.095	.192	.029	.205	-.084
itrole7	.321	.180	.222	.623	-.131	-.008	.211	-.064	.035	.235	-.112	-.122
trust7	.028	.178	.090	.176	.787	.080	.114	.082	.115	.135	.153	-.068
trust6	.098	.114	-.037	.027	.686	.055	.227	.012	.137	.153	.021	.151
trust8	.121	.076	.154	.084	.672	.226	.067	.257	.183	-.111	.131	-.041
trust5	.043	.173	.149	.285	.661	.227	.127	.290	.129	.022	-.032	-.052
li1	.097	.147	.099	.023	.137	.853	.178	.029	.061	.040	.001	.085

ITEMS	INNOSUC	KNOW	COMBCAP	ITROLE	TRUST	LI	RSENDOW	VISION	RELAT	COGN	OSEXP	BUSSUC
li2	.124	.125	.106	.086	.128	.842	.143	.191	.118	-.105	.080	.023
li3	.106	.247	.181	.080	.138	.817	.077	.013	.046	.016	.026	.024
rsendow4	.192	.125	.166	.141	.146	.059	.736	-.066	.059	-.113	.018	.063
rsendow1	.094	.062	-.067	.205	.194	.240	.678	.265	.269	.094	.070	-.033
rsendow2	.247	.045	.055	.135	.161	.166	.676	.219	.094	.052	.087	.097
rsendow5	.172	.267	.287	.095	.081	.211	.497	.371	.068	.126	.055	-.121
rsendow3	.022	.026	-.032	.152	.367	.359	.464	.070	.155	-.165	.241	.069
vision3	.118	.214	.134	.048	.341	.049	.139	.707	.084	-.005	.024	.185
vision1	.089	.128	.283	.095	.175	.103	.220	.689	.219	-.050	.096	-.104
vision2	.276	.108	.307	.087	.171	.130	.125	.602	.262	.073	.188	.201
relat5	.121	.103	.043	.046	.100	.115	.158	.056	.746	.240	.075	.085
relat3	.228	.072	.109	.133	.409	.167	.258	.128	.633	-.149	.021	.016
relat2	.224	.035	.121	.078	.341	.093	.014	.290	.586	.078	.030	.149
relat4	.215	.080	.113	.086	.419	-.018	.392	.234	.546	-.065	.026	.114
cogn3	.091	.048	.241	.041	-.033	-.003	-.002	.008	.044	.806	.085	.136
cogn2	.052	.155	.207	.076	.079	-.072	-.124	-.132	.204	.741	.014	-.014
cogn1	.331	.074	.210	.050	.224	-.016	.135	.264	-.097	.617	-.020	.065
osexp3	.115	.027	.046	-.016	.038	.058	.017	.019	.220	.014	.789	-.045
osexp2	.026	.199	.121	.186	.137	.076	.077	.114	-.125	-.058	.765	-.075
osexp1	.264	.043	.083	.241	.075	-.038	.121	.049	-.021	.195	.679	.190
suc3	.311	.231	.217	.154	-.006	.078	.099	.032	.168	.158	-.055	.718
suc4	.371	.255	.193	.153	.067	.149	.031	.208	.176	.102	.066	.597

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 8 iterations.
OSEXP = IT Outsourcing Experience, IT ROLE = Role of IT, RSENDOW = Partner Resource Endowment, RELAT = Social Interaction, TRUST = Trust, VISION = Shared Vision, COGN = Shared Cognition, LI = Learning Intent, KNOW = Knowledge Acquisition, COMBCAP = Combinative Capability, BUSSUC = Success in Business Operations, INNOSUC = Success in Innovation

Table 13: Exploratory Factor Analysis Results—Outsourcer (N=79)

ITEMS	INNOSUC	KNOW	VRELAT	ITROLE	COMBCAP	VVISION	VTRUST	VCOGN	OSEXP	BUSSUC	TRND
suc16	.870	.139	.021	.130	.124	.011	.001	.022	.060	-.022	.262
suc15	.857	.185	.083	.154	.094	.110	-.032	.008	.052	.051	.038
suc14	.789	.122	.096	.099	.228	.057	-.034	-.023	.081	.029	.092
suc13	.750	.313	.153	.081	.101	.008	-.021	.100	.070	.028	.062
suc8	.638	.274	-.124	.219	.080	-.017	.213	-.064	.009	.214	-.088
suc12	.624	.242	.126	.239	.249	.057	-.167	-.027	.113	.215	-.151
suc11	.533	.297	.217	.212	.158	.072	.091	-.023	.214	.371	-.183
suc17	.590	.086	.193	-.091	.100	.071	.096	-.018	.174	.113	.597
suc18	.496	.147	.234	.100	.145	.140	.030	-.025	.341	.027	.491
bknow2	.037	.814	.139	-.064	.215	-.073	.127	.115	.217	.011	-.037
tknow5	.271	.789	.029	.132	-.118	-.003	-.041	.138	-.209	-.075	.010
bknow3	.066	.769	.169	-.039	.231	.005	.041	-.052	.169	.154	-.093
bknow1	.439	.721	-.043	.124	.119	.028	-.119	-.079	-.008	.042	-.079
tknow4	.377	.676	-.069	-.039	.052	.074	-.019	.271	-.084	.006	.164
tknow6	.326	.671	-.101	.258	-.006	.028	-.136	-.107	-.129	.111	.316
nknow3	.237	.537	-.042	.134	.098	-.012	.023	-.017	.091	.237	.380
vrelat3	.112	.141	.816	.101	.003	.291	.042	.062	-.062	.064	.150
vrelat2	.111	-.081	.796	.002	.065	.089	.167	.105	.215	-.045	.032
vrelat4	.056	.059	.789	.195	-.050	.369	.005	.110	-.052	.194	-.018
vrelat5	.091	.041	.778	.006	.137	-.024	.254	.129	-.099	-.046	-.014
itrole1	.096	-.016	.016	.782	.053	.114	.003	.140	.072	.209	-.122
itrole2	.100	.132	.132	.767	.158	-.026	-.151	.078	.122	-.012	.099
itrole3	.208	.025	.028	.765	.015	.184	.114	-.033	.098	.048	.085
itrole6	.109	.027	.034	.670	.218	-.066	.314	.041	.201	-.085	-.088
itrole7	.313	.153	.104	.581	.263	-.171	.092	.074	-.149	-.002	.159
combcap4	.189	.154	-.107	.138	.764	.187	-.058	.049	-.097	.083	.068
combcap3	.017	.019	.219	.026	.760	.091	.052	-.135	.100	.121	-.114
combcap2	.313	.023	.142	.193	.700	-.057	-.058	-.003	-.060	.087	-.036
combcap1	.118	.175	-.073	.106	.699	-.073	.121	-.008	.106	.057	.108
combcap6	.412	.090	-.057	.137	.608	.051	.081	.081	.143	.121	.322
vvision1	.112	.012	.222	6.56E-006	.031	.799	.213	.045	.123	.064	.064

ITEMS	INNOSUC	KNOW	VRELAT	ITROLE	COMBCAP	VVISION	VTRUST	VCOGN	OSEXP	BUSSUC	TRND
vvision3	-.044	-.020	.179	-.057	.132	.714	-.040	.432	-.126	-.152	.084
vvision2	.114	-.017	.201	.148	.068	.706	.283	.101	.145	.080	-.052
vtrust6	-.056	-.102	.142	.090	.088	.001	.815	.070	-.021	.040	-.018
vtrust7	-.073	.063	.151	.047	.090	.355	.750	-.060	.067	-.082	.159
vtrust8	.157	.062	.257	.061	-.104	.431	.573	.080	.006	.218	-.056
vtrust5	.078	.018	.480	.053	-.144	.362	.502	.136	-.015	.162	-.013
vcogn3	-.022	.042	.094	-.020	-.078	.154	.001	.867	.077	.102	.019
vcogn2	-.009	.226	.219	.319	-.017	-.005	.172	.677	-.030	-.082	-.109
vcogn1	.065	-.036	.165	.138	.035	.335	.011	.627	.148	.310	.063
osexp2	.010	.174	-.026	.229	.052	-.001	-.106	.020	.826	-.085	.005
osexp1	.302	-.001	.004	.337	.036	.059	.051	.117	.661	.128	.262
osexp3	.359	-.207	.006	-.108	.032	.201	.195	.073	.575	-.032	-.009
suc4	.298	.134	-.039	.008	.275	.025	-.010	.132	-.041	.791	-.088
suc3	.045	.118	.196	.146	.196	.062	.149	.114	-.049	.741	.369

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 9 iterations.
OSEXP = IT Outsourcing Experience, IT ROLE = Role of IT, RSENDOW = Partner Resource Endowment, RELAT = Social Interaction, TRUST = Trust, VISION = Shared Vision, COGN = Shared Cognition, LI = Learning Intent, KNOW = Knowledge Acquisition, COMBCAP = Combinative Capability, BUSSUC = Success in Business Operations, INNOSUC = Success in Innovation

5.4.2 Confirmatory Factor Analysis

I also performed confirmatory factor analysis (CFA) by fitting congeneric measurement models for each construct in AMOS (Childers et al. 2001). Confirmatory factor analysis seeks to determine whether the number of factors and the loadings of measured variables (indicators) on them conform to what is expected on the basis of pre-established theory. I used CFA to determine whether the measures created to represent a latent variable really belong together. Table 14 shows the result of CFA for all latent variables with the absolute measure of fit (CMIN/df), which indicates a good fit if the statistic value falls between 1 and 3 (Carmines et al. 1981). The RMR (root mean square residual) measures how much the sample variances and covariances differ from their estimates obtained under the assumption that the model is correct, and a small RMR, preferably below .05 indicates a good model fit (Joreskog 1993). Additionally, I also obtained the goodness of fit index (GFI) and the adjusted goodness of fit index (AGFI) from the confirmatory factor analysis. Both indices are bound between 1 and 0, where 1 indicates a perfect fit. A GFI of .90 or above and an AGFI of .80 or above indicate a reasonably good fit (Joreskog 1993). Fit indices for comparisons to a baseline model, such as normed fit index (NFI), relative fit index (RFI), incremental fit index (IFI), Tucker-Lewis coefficient (TLI) and comparative fit index, were generated from the CFA results. All of these indices have a recommended level of .90 to suggest a good model fit (Chin 1998; Chin et al. 1995). I also used a population-based goodness of fit index RMSEA, which is relatively insensitive to sample size (Loehlin 1998). A value of .08 or less for RMSEA is usually considered to indicate a reasonably good fit (Brown et al. 1993), although some times the threshold value can be the lifted up to .10 (Steiger 1989). As shown in Table 14, most of the latent variable

models have fit indices that pass the recommended threshold level, indicating a relatively good fit.

The latent variables with 3 or fewer indicators make the models just identified, with zero degrees of freedom. When the model is perfectly fit, most of the fit indices equal to 1.00. In this case, results from exploratory factor analysis and reliability test (reported below) were used to examine the validity of the measurement scales (Childers et al. 2001).

The last two columns of Table 14 show the standardized regression weight of each item, and the *p* values indicate that all items have significant standardized regression weight at a .01 level, except for items that have regression weights set to 1.00.

Table 14: Results of Confirmatory Factor Analysis with AMOS

Construct	CMIN	DF	CMIN/DF (1 to 5)	RMR (<.05)	GFI (>.90)	AGFI (>.80)	NFI (>.90)	RFI (>.90)	IFI (>.90)	TLI (>.90)	CFI (>.90)	RMSEA (<.08)	Items	Std. Regression Weight	p
Partner Resource Endowment (Client, N=151)	1.828	2	**.914**	**.017**	**.994**	**.971**	**.990**	**.971**	**1.001**	**1.003**	**1.000**	**.000**	RSENDOW1	.814	
													RESNDOW2	.766	***
													RESNDOW4	.623	***
													RESNDOW5	.630	***
Relational Dimension (Client, N=151)	29.612	18	**1.645**	**.027**	**.957**	**.914**	**.951**	**.924**	**.980**	**.969**	**.980**	**.066**	**RELAT**	.783	
													RELAT2	.664	***
													RELAT3	.907	***
													RELAT4	.852	
													RELAT5	.567	***
													TRUST	.920	
													TRUST5	.787	***
													TRUST6	.619	
													TRUST7	.812	***
													TRUST8	.757	***
Social Interaction (Client, N=151)	3.704	1	**3.704**	**.011**	**.988**	**.880**	**.987**	**.921**	**.990**	**.941**	**.990**	.134	RELAT2	.651	
													RELAT3	.930	***
													RELAT4	.836	***
													RELAT5	.560	***
Trust (Client, N=151)	4.161	2	**2.080**	**.016**	**.987**	**.934**	**.982**	**.946**	**.991**	**.971**	**.990**	.085	TRUST5	.754	***
													TRUST6	.613	
													TRUST7	.866	***
													TRUST8	.734	***
Cognitive Dimension (Client, N=151)	6.230	6	**1.038**	**.032**	**.986**	**.952**	**.981**	**.952**	**.999**	**.998**	**.999**	**.016**	VISION1	.779	
													VISION2	.817	***
													VISION3	.802	***
													COGN1	.571	
													COGN2	.686	***
													COGN3	.874	***

Construct	CMIN	DF	CMIN/DF (1 to 5)	RMR (<.05)	GFI (>.90)	AGFI (>.80)	NFI (>.90)	RFI (>.90)	IFI (>.90)	TLI (>.90)	CFI (>.90)	RMSEA (<.08)	Items	Std. Regression Weight	p
Relational Dimension (Vendor, N=79)	17.202	17	**1.012**	**.047**	**.952**	**.897**	**.949**	**.915**	**.999**	**.999**	**.999**	**.012**	**VRELAT**	.734	
													VRELAT2	.700	***
													VRELAT3	.910	***
													VRELAT4	.910	
													VRELAT5	.638	***
													VTRUST	.880	
													VTRUST5	.862	***
													VTRUST6	.536	
													VTRUST7	.606	***
													VTRUST8	.724	***
Social Interaction (Vendor, N=79)	10.345	2	5.172	.060	**.938**	.689	**.945**	.834	**.955**	.861	**.954**	.231	VRELAT2	.721	
													VRELAT3	.916	***
													VRELAT4	.895	***
													VRELAT5	.662	***
Trust (Vendor, N=79)	5.440	2	**2.720**	**.042**	**.965**	**.826**	**.948**	.843	**.966**	.895	**.965**	.148	VTRUST5	.750	***
													VTRUST6	.673	
													VTRUST7	.749	***
													VTRUST8	.709	***
Cognitive Dimension (Vendor, N=79)	19.913	8	**2.489**	.102	**.928**	**.811**	.872	.760	**.919**	.841	**.915**	.138	VVISION1	.783	
													VVISION2	.774	***
													VVISION3	.675	***
													VCOGN1	.738	
													VCOGN2	.609	***
													VCOGN3	.733	***
Knowledge Acquisition (Client, N=151)	19.218	10	**1.922**	**.020**	**.969**	**.914**	**.969**	**.935**	**.985**	**.968**	**.985**	**.078**	TKNOW4	.742	***
													TKNOW5	.812	***
													TKNOW6	.625	
													BKNOW1	.831	***
													BKNOW2	.743	***
													BKNOW3	.704	***
													NKNOW3	.693	***

Construct	CMIN	DF	CMIN/DF (1 to 5)	RMR (<.05)	GFI (>.90)	AGFI (>.80)	NFI (>.90)	RFI (>.90)	IFI (>.90)	TLI (>.90)	CFI (>.90)	RMSEA (<.08)	Items	Std. Regression Weight	P
Combinative Capability (Client, N=151)	7.351	5	**1.470**	**.015**	**.980**	**.939**	**.981**	**.962**	**.994**	**.988**	**.994**	**.056**	COMBCAP1	.799	***
													COMBCAP2	.800	***
													COMBCAP3	.842	***
													COMBCAP4	.740	***
													COMBCAP6	.704	
IT Outsourcing Success	109.544	37	**2.961**	.496	.896	**.814**	**.912**	.869	**.940**	**.909**	**.939**	.114	**BUSSUC**	1.043	
													SUC3	.845	***
													SUC4	.953	
													INNOSUC	.824	
													SUC8	.775	***
													SUC11	.885	***
													SUC12	.873	***
													SUC13	.892	***
													SUC14	.906	
													SUC15	.928	***
													SUC16	.888	***
													SUC17	.845	***
													SUC18	.852	***
Role of IT (Client, N=151)	8.338	5	**1.668**	**.024**	**.977**	**.931**	**.974**	**.949**	**.990**	**.979**	**.989**	**.067**	ITROLE1	.816	***
													ITROLE2	.800	***
													ITROLE3	.785	***
													ITROLE6	.663	
													ITROLE7	.630	***

Goodness of fit measures that pass the threshold are represented in bold-face fonts.

***: significant at α=.01.

5.4.3 Reliability: Test of Internal Consistency

Since multiple items were used to measure a uni-dimensional construct, it is important to establish thatthe same set of items measure in the same way each time they are used under the same conditions with the same subjects, i.e., the reliability of the measurement. Reliability analyses typically measure the internal consistency of multiple-item scales by measuring the homogeneity of the indicators that are part of the construct. I used Cronbach's coefficient alpha as the measure of construct reliability. In social science research, a Cronbach's alpha of .70 or higher is considered to indicate an acceptable level of internal consistency (Nunnaly 1978). As shown in Table 15, the values of Cronbach's alpha of all constructs all pass the .70 threshold, indicating adequate reliability of construct measurement.

Table 15: Reliability Measures

Construct	Sample Size	Number of Items	Cronbach's Alpha
Partner Resource Endowment	N=151	4	.794
Social Interaction (Client)	N=151	4	.842
Trust (Client)	N=151	4	.819
Shared Vision (Client)	N=151	3	.840
Shared Cognition (Client)	N=151	3	.745
Social Interaction (Vendor)	N=79	4	.872
Trust (Vendor)	N=79	4	.800
Shared Vision (Vendor)	N=79	3	.783
Shared Cognition (Vendor)	N=79	3	.736
Learning Intent	N=151	3	.908
Knowledge Acquisition	N=151	7	.900
Combinative Capability	N=151	5	.884
Success in Business Operation	N=151	2	.803
Success in Innovation	N=151	9	.936
IT Outsourcing Experience	N=151	3	.717
Role of IT	N=151	5	.853

5.4.4 Descriptive Statistics and Test of Normality

A summated scale was created by taking the average score of each multi-item construct. These summated scales were used as the client sample. A paired-sample t-test was performed to detect if there is any difference in the responses to the same measurement scales between the client and the outsourcing partner. The comparison between the client response and the vendor response shows that the outsourcing partners are more satisfied with the social interactions, trust, and shared vision with the client firm. However, the outsourcing partners perceive that the client firms have lower absorptive capacity (shared cognition) than the self-reported perception by the client firms. As shown in Table 16 and 17, the differences in the perceptions on shared vision and shared cognition between the client firms and the outsourcing partners are significant. To reduce the common method bias caused by self-reported data, I aggregated the constructs based on responses from the vendor firms and their corresponding constructs based on responses from the client firm, creating a matched-pair sub-sample. I used the client responses and the paired responses to test the proposed research model.

Table 16: Paired Sample Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Social Interaction (Client)	4.8671	79	.70805	.07966
	Social Interaction (Vendor)	5.5633	79	.80907	.09103
Pair 2	Trust (Client)	5.2120	79	.63937	.07193
	Trust (Vendor)	5.6551	79	.78885	.08875
Pair 3	Shared Vision (Client)	4.9747	79	.70966	.07984
	Shared Vision (Vendor)	5.4599	79	.91100	.10250
Pair 4	Shared Cognition (Client)	4.2025	79	.72877	.08199
	Shared Cognition (Vendor)	4.0675	79	1.04374	.11743

Table 17: Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Social Interaction (Client vs. Vendor)	79	.151	.185
Pair 2	Trust (Client vs. Vendor)	79	.177	.119
Pair 3	Shared Vision (Client vs. Vendor)	79	.190	.093
Pair 4	Shared Cognition (Client vs. Vendor)	79	.325	.004

I summarize the descriptive statistics, distribution of all variables in Table 18 and inter-variable correlations in Table 19. I examined skewness and kurtosis, two important indicators of how far the distribution of a variable deviates from normality. The analyses detected non-normal distribution on the following variables: *social interaction* (client), *trust* (client), *shared vision* (client), *combinative capabilities*, *success in business operations*, and *shared cognition* (vendor). In addition, problems of kurtosis were found in the following variables: *IT outsourcing experience*, *shared vision* (client), *shared cognition* (client), *knowledge acquisition*, *combinative capabilities*, and *success in innovation*. To fix the problem of non-normality, I used the natural logarithm to transform the non-normally distributed variables. The distributions of most of the above variables improved after the data transformation, except for *shared vision* and *combinative capabilities*. A close examination of the data suggests that the severe problem of skewness is caused by several outlier cases, as shown in the histograms of *shared vision* (client) and *combinative capabilities* before and after data transformation in Figure 9 and Figure 10. In order to preserve the generalizability of the sample, I decided not to drop the outlier cases, while acknowledging their impact on the overall distribution of their respective variables.

Table 18: Descriptive Statistics and Normality

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
IT Outsourcing Experience	151	1.33	6.67	4.7373	.79964	-.248	1.985*
Role of IT	151	3.20	7.00	5.4106	.78546	-.035	-.278
Partner Resource Endowment	151	3.00	7.00	5.0371	.70971	.184	.370
Social Interaction	151	3.25	7.00	4.7964	.69426	.682*	.691
Trust	151	4.00	7.00	5.1093	.62688	.732*	.480
Shared Vision	151	1.00	7.00	4.9161	.78336	-.452*	3.883*
Shared Cognition	151	1.00	7.00	4.1192	.83829	-.178	1.639*
Learning Intent	151	3.00	7.00	5.2583	.84343	.109	-.101
Knowledge Acquisition	151	3.00	7.00	4.7058	.62992	.369	1.451*
Combinative Capabilities	151	2.00	7.00	4.7364	.63807	-.517*	2.968*
Success in Business Operations	151	3.00	7.00	4.7715	.66014	.416*	.863
Success in Innovation	151	2.89	7.00	4.7572	.70570	.340	1.283*
Social Interaction (Paired)	79	3.88	6.88	5.2152	.57629	.466	.663
Trust (Paired)	79	4.13	6.88	5.4335	.54993	.288	-.170
Shared Vision (Paired)	79	3.83	6.67	5.2173	.62836	.012	-.173
Shared Cognition (Paired)	79	2.50	6.17	4.1350	.72701	.511	.229

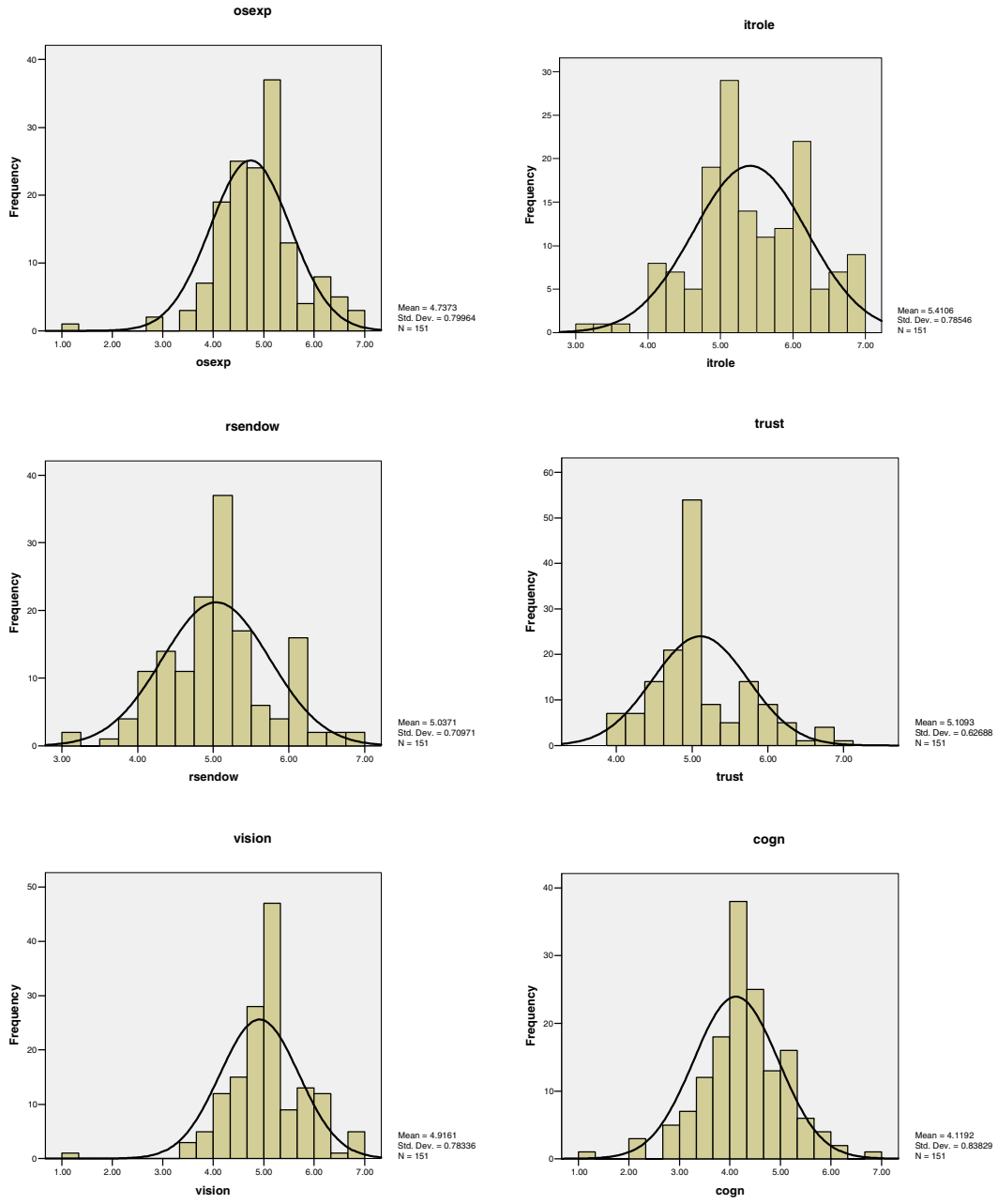
Significant at $\alpha = .05$ level.

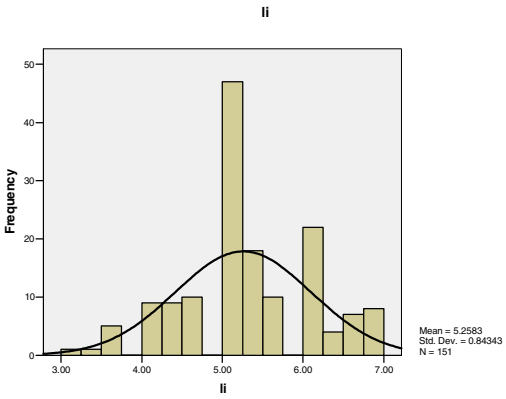
Table 19: Inter-variable Correlations (N=151)

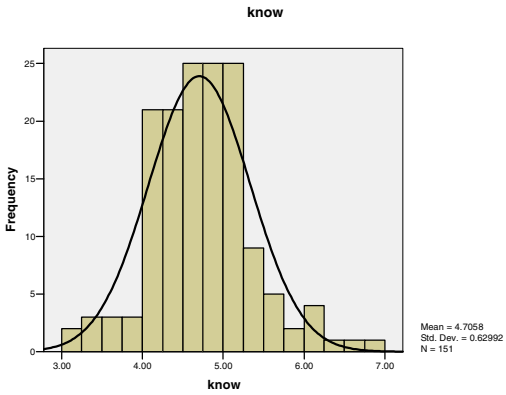
Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. OSEXP																	
2. ITROLE	.327**																
3. FINANCE	.030	.073															
4. ELECTRONICS	.053	.067	-.038														
5. TRANSPORTATION	.152	.231**	-.044	-.048													
6. MINING	-.012	-.099	-.049	-.054	-.063												
7. CONSTRUCTION	-.052	-.038	-.026	-.029	-.034	-.038											
8. OTHER	.027	.020	-.015	-.017	-.019	-.022	-.012										
9. RSENDOW	.316**	.437**	-.010	.028	.205*	.009	-.101	-.004									
10. RELAT	.251**	.329**	-.146	.109	-.091	.098	-.027	.024	.572**								
11. TRUST	.279**	.358**	-.106	.059	.041	.071	.013	-.014	.559**	.618**							
12. VISION	.317**	.324**	-.028	.022	.101	.199*	.015	.009	.553**	.575**	.560**						
13. COGN	.183*	.263**	.018	.066	-.046	-.049	.036	.086	.155	.238**	.225**	.242**					
14. LI	.180*	.244**	.061	-.049	.197*	-.008	.107	-.025	.492**	.351**	.411**	.367**	.071				
15. KNOW	.298**	.365**	.070	-.013	-.004	-.015	.024	.038	.446**	.409**	.415**	.464**	.312**	.470**			
16. COMBCAP	.277**	.451**	.019	.106	.247**	.043	-.001	.034	.347**	.345**	.322**	.482**	.465**	.319**	.408**		
17. BUSSUC	.212**	.387**	-.076	-.007	.037	.012	.049	-.034	.348**	.438**	.274**	.431**	.385**	.296**	.539**	.458**	
18. INNOSUC	.336**	.475**	.005	.081	.119	-.106	.019	.028	.453**	.463**	.326**	.433**	.344**	.321**	.639**	.438**	.600**

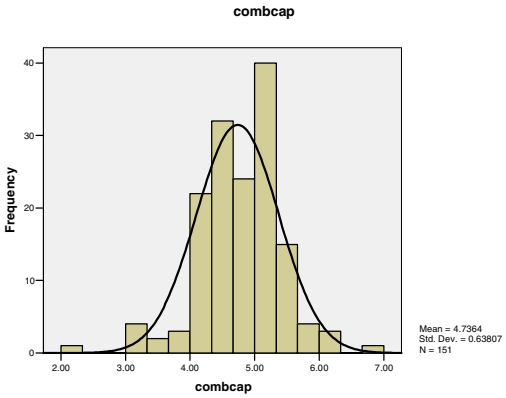
**: Correlation is significant at the 0.01 level (2-tailed).
*: Correlation is significant at the 0.05 level (2-tailed).

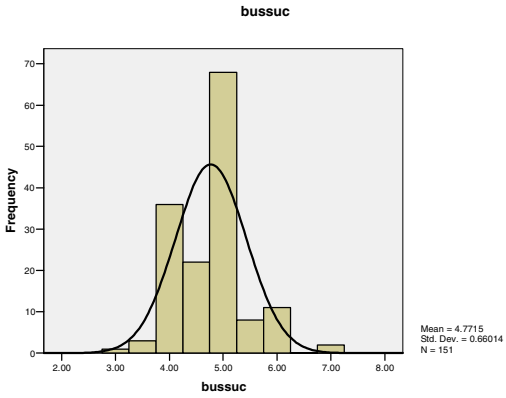
Figure 9: Distributions of Original Variables




li
Frequency
Mean = 5.2583
Std. Dev. = 0.84343
N = 151
li


know
Frequency
Mean = 4.7058
Std. Dev. = 0.62992
N = 151
know


combcap
Frequency
Mean = 4.7364
Std. Dev. = 0.63807
N = 151
combcap


bussuc
Frequency
Mean = 4.7715
Std. Dev. = 0.66014
N = 151
bussuc

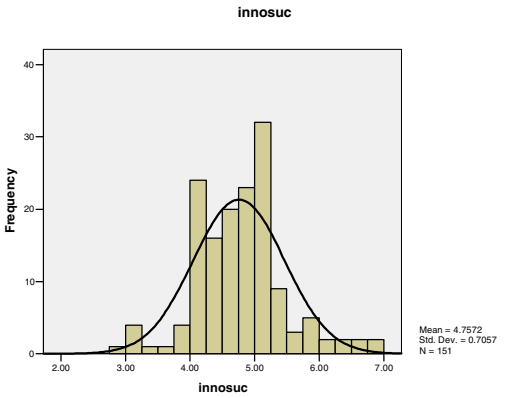
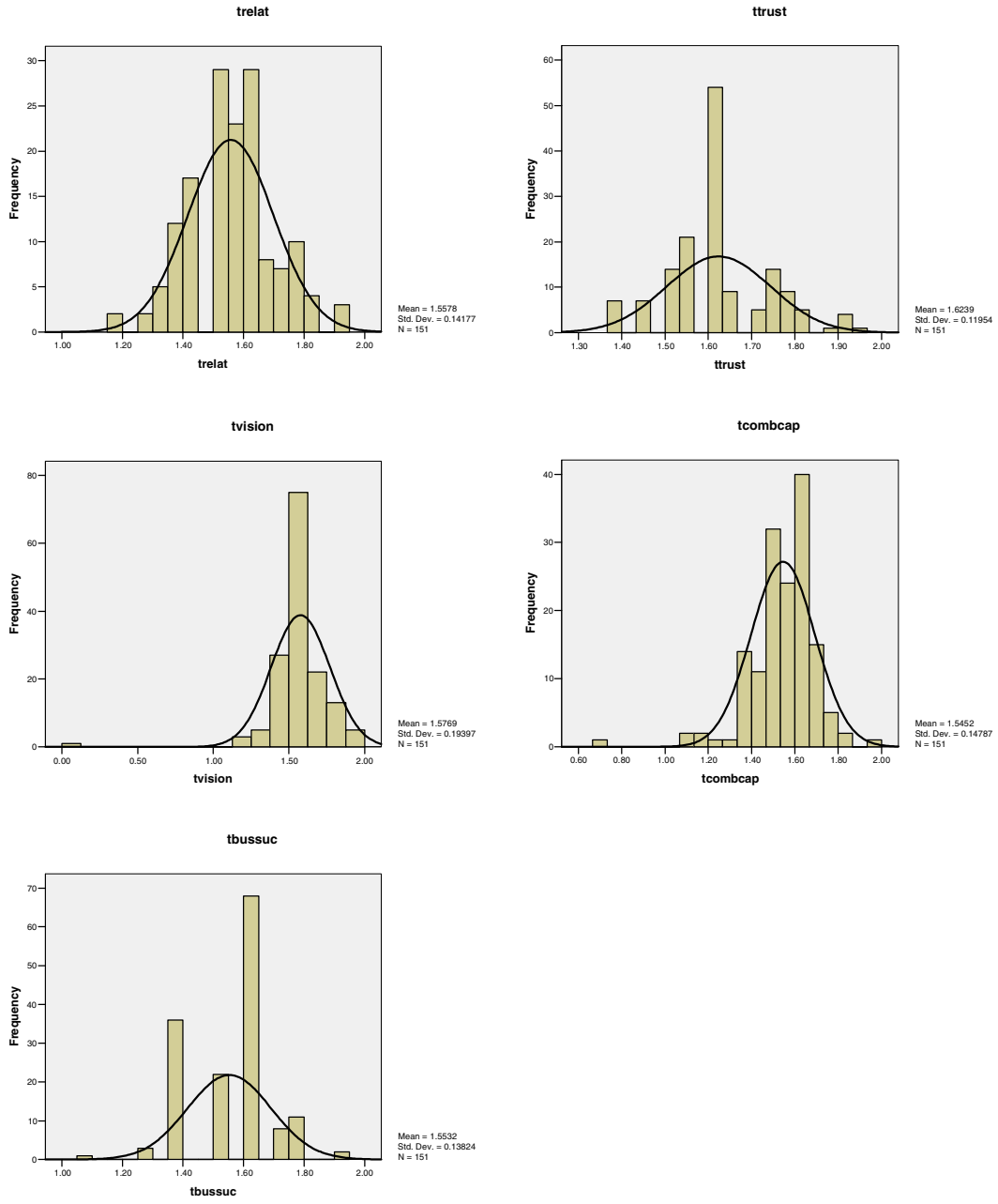

innosuc
Frequency
Mean = 4.7572
Std. Dev. = 0.7057
N = 151
innosuc

Figure 10: Distributions of Transformed Variables



5.4.5 Sample Size and Power

Statistical power is the probability of rejecting the null hypothesis when it should be rejected, and power is determined by alpha and sample size. The sample size of this study is 151 for the client sample and 79 for the paired sample. For multiple regression analyses, this sample size is sufficient because there are about 10 observations for each independent variable, exceeding the minimum requirement of 5 observations.

5.4.6 Hypotheses

Based on the theoretical propositions in Chapter 4, I summarize all testable hypotheses, and use them as the basis for the regression analysis and structural equation modeling analysis.

Hypothesis 1a: The resource endowment of the IT outsourcer is positively related to knowledge acquisition by the client firm.

Hypothesis 1b: The influence of the resource endowment of the IT outsourcer on knowledge acquisition by the client firm is stronger when the client firm has a higher level of learning intent.

Hypothesis 2a: A higher level of social interaction between individuals of the client firm and those of the IT outsourcer are positively related to knowledge acquisition by the client firm.

Hypothesis 2b: The influence of level of social interaction between individuals of the client firm and those of the IT outsourcer on knowledge acquisition by the client firm is stronger when the client firm has a higher level of learning intent.

Hypothesis 3a: A higher level of trust between the client firm and the IT outsourcer is positively related to knowledge acquisition by the client firm.

Hypothesis 3b: The influence of the level of trust between the client firm and the IT outsourcer on knowledge acquisition by the client firm is stronger when the client firm has a higher level of learning intent.

Hypothesis 4a: The level of shared vision between the client firm and the IT outsourcer is positively related to knowledge acquisition by the client firm in a non-linear fashion.

Hypothesis 4b: The influence of the level of shared cognition between the client firm and the IT outsourcer on knowledge acquisition by the client firm is stronger when the client firm has a higher level of learning intent.

Hypothesis 5a: A higher level of shared cognition between the client and the IT outsourcer is positively related to knowledge acquisition by the client firm.

Hypothesis 5b: The influence of the level of shared cognition between the client firm and the IT outsourcer on knowledge acquisition by the client firm is stronger when the client firm has a higher level of learning intent.

Hypothesis 6a: The level of knowledge acquisition by the client firm is positively related to its success in business operations.

Hypothesis 6b: The influence of knowledge acquisition by the client firm on its success in business operations is stronger when the client firm has stronger combinative capabilities.

Hypothesis 7a: The level of knowledge acquisition by the client firm is positively related to its success in innovation.

Hypothesis 7b: The influence of knowledge acquisition by the client firm on its success in business operations is stronger when the client firm has stronger combinative capabilities.

5.5 SUMMARY

In Chapter 5, I described the research methodology and sampling procedures. In addition, I provide a snapshot of the sample firms based on descriptive statistics. The psychometric properties of the measurement scales were assured using reliability analysis, exploratory and confirmatory factor analyses, and found to be adequate. In the chapter that follows, I report the results of testing the research hypotheses using two analytical techniques.

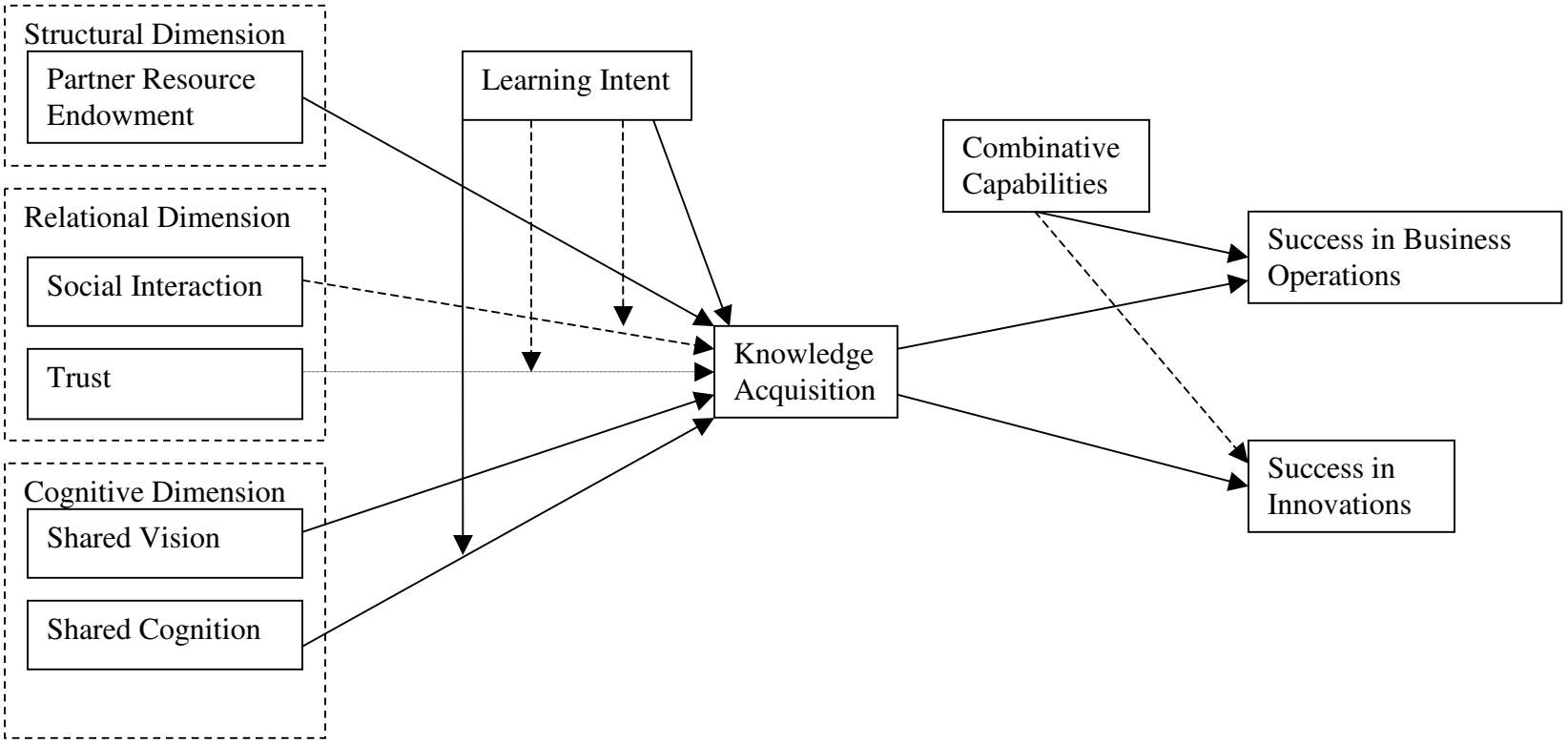
CHAPTER 6: ANALYSES AND RESULTS

Three-Stage Least Squares (3SLS) is used as the basis for estimation in testing the research hypotheses. 3SLS is an instrumental variable estimation technique that combines the Two-Stage Least Squares (2SLS) and Seemingly Unrelated Regressions (SUR) (Greene 2002; Zellner et al. 1962). 3SLS can derive parameter estimations for a system of equations when some endogenous variables in some equations are used as exogenous variables in other equations. In addition, 3SLS takes into account the possibility of correlation among error terms across equations. Therefore, 3SLS is the recommended technique for triangular structural systems (Lahiri et al. 1978).

Two sub-samples are used for hypothesis testing. The first sub-sample consists of responses from the client firms only (N=151); therefore it is called the **client sample**. The second model sub-sample incorporates data from the matched sample firms (N=79) to form aggregate measures for each indicator; therefore, it is called the **paired sample**.

Results provide strong evidence that the cognitive dimension of social capital is a critical antecedent of knowledge acquisition, and that knowledge acquisition plays an important role in the success of the IT outsourcing project. Figure 11 summarizes the findings of relationships between constructs in the proposed research model. The solid lines indicate relationships that have been found significant across analytical techniques and samples, whereas the dotted lines indicate relationships that have been found significant in with some analytical technique or sample. Data analysis results are discussed below

Figure 11: Summary of Relationships in Research Model



6.1 THREE-STAGE LEAST SQUARES (3SLS)

A system of three equations is specified in 3SLS. In the first equation, all independent variables (dimensions of social capital) and their interaction terms with *learning intent* are regressed on *knowledge acquisition*. In the second and third equations, *Knowledge Acquisition* and its interaction term with *combinative capabilities* are regressed on *success in business operations* and *success in innovation*, respectively.

6.1.1 Data Conversion

I took several data conversion steps before running the 3SLS analysis.

As mentioned earlier, a summated scale was created for each multi-item construct. For the **client sample**, I aggregated indicators that measure the same construct to create a single-value variable by taking the mean of all indicators for the same construct. For the **paired sample**, based on the summated scale for both client and vendor constructs, I took an average of the scales that measure the responses for the same indicator from both the client and the vendor.

All hypothesized relationships are linear except for the relationship between *shared cognition* and *knowledge acquisition*. To test if a non-linear relationship exists, all indicators that measure *shared cognition* were squared and aggregated to create a new variable labeled *COGNSQ*. To test the interaction effects between *learning intent* and the social capital constructs, interaction terms were created for corresponding independent variables (Chin el al, 1996). First, all indicators that measure each of the social capital construct and the 3 indicators that measure *learning intent* were centered to avoid the problem of multicollinearity. Then, each of the centered indicators that measure the social capital variables was multiplied by the each of the 3 centered indicators that

measure *learning intent*. An interaction variable was then created by taking the mean of the products for each social capital variable. Similarly, an interaction term between *combinative capabilities* and *knowledge creation* was created using the mean of the products of centered indicators for both constructs. All data in the client sample and the paired sample were converted for hypothesis testing.

6.1.2 3SLS Equations and Variables

The research model can be summarized in three equations:

1. Knowledge Acquisition = Partner Resource Endowment + Social Interaction + Trust + Shared Vision + Shared Cognition + Learning Intent + Partner Resource Endowment x Learning Intent + Social Interaction x Learning Intent + Trust x Learning Intent + Shared Vision x Learning Intent + Shared Cognition x Learning Intent + Error
2. Success in Business Operations = Knowledge Acquisition + Combinative Capabilities + Knowledge Acquisition x Combinative Capabilities + Error
3. Success in Innovation = Knowledge Acquisition + Combinative Capabilities + Knowledge Acquisition x Combinative Capabilities +Error

As shown in these equations, the hypotheses are set up to explain three interrelated dependent variables: *knowledge acquisition*, *success in business operations*, and *success in innovation*. The interrelated nature of these variables—statistically indicated by the high correlations among the error terms of the three equations—suggests that the use of single equation models may yield biased results and obscure interesting theoretical interpretations. The appropriate model to estimate these equations is a simultaneous equations approach (3SLS in this case) that circumvents the problem of interdependency by using instrument variables (the exogenous variables) to obtain the predicted values of the endogenous variables (in this case, *knowledge acquisition*, *success in business operations*, and *success in innovation*).

6.1.3 3SLS Analysis: Client Sample

In this section, I present the results of 3SLS analyses using the client sample. The 3SLS analyses consist of three equations, where *knowledge acquisition*, the endogenous variable in the first equation, are used as an exogenous variable in the second and the third equation. Results of the 3SLS analyses are summarized in Table 20 and discussed below.

6.1.3.1 Social Capital and Knowledge Acquisition

In the first round of 3SLS analysis, I tested the research model with a curvilinear relationship between *shared cognition* and *knowledge acquisition*, and detected the problem of multicollinearity between *COGN* and *COGNSQ*. To determine whether the relationship between *shared cognition* and *knowledge acquisition* is curvilinear, I use a scatter plot to examine the relationship. The scatter plot in Figure 12 shows that the curve that represents the relationship between *shared cognition* and *knowledge acquisition* is flat, indicating a possibility of a linear rather than curvilinear relationship. This suggests that Hypotheses 5a and 5b are not supported. Nonetheless, I test the model with the linear relationship between *shared cognition* and *knowledge acquisition* in the second round of 3SLS analysis.

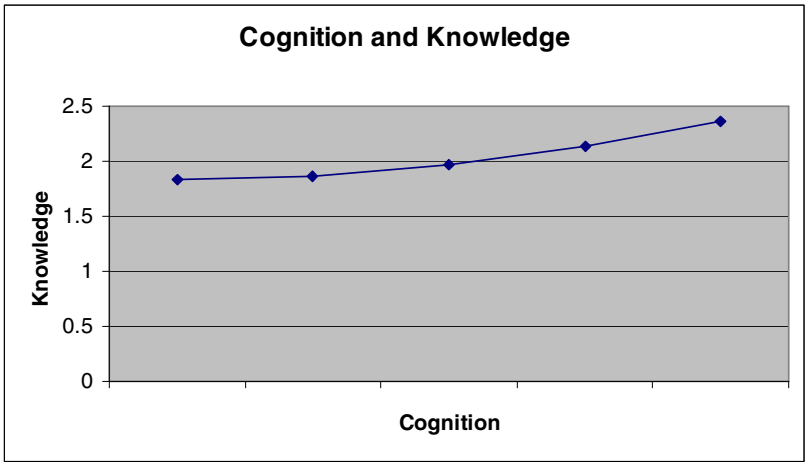
Table 20: Results of Three-Stage Least Square Regression—Client Sample (N=151)

Equation	Variable	Coefficient	Std. Err.	z	p>|z|	95% Confidence Interval	
Knowledge	Finance	.093	.186	.50	.615	-.270	.457
	Electronics	.052	.110	.26	.796	-.340	.444
	Transportation	-.264	.175	-1.51	.131	-.606	.078
	Construction	.019	.255	.08	.940	-.480	.518
	Mining	.001	.146	.01	.994	-.285	.287
	Other	.122	.428	.29	.775	-.716	.960
	OSEXP	.056	.049	1.15	.251	-.040	.152
	ITROLE	.121	.054	2.26	.024*	.016	.226
	RSENDOW	.129	.067	1.93	.054†	-.002	.260
	RELAT	.704	.334	2.11	.035*	.050	1.358
	TRUST	-.224	.380	-.59	.556	-.967	.520
	VISION	.827	.219	3.78	.000***	.398	1.26
	COGN	.135	.044	3.10	.002**	.050	.221
	RSENDOWxLI	-.086	.079	-1.09	.277	-.240	.069
	TRUSTxLI	-.956	.506	-1.89	.059†	-1.948	.037
	RELATxLI	.716	.348	2.06	.040*	.033	1.398
	VISIONxLI	-.026	.204	-.13	.898	-.427	.375
	COGNxLI	.155	.040	3.89	.000***	.077	.233
	LI	.258	.050	5.15	.000***	.160	.357
	Constant	.685	.534	1.28	.200	-.362	1.732
Success in Business Operations	Finance	-.067	.047	-1.43	.154	-.160	.025
	Electronics	-.038	.052	-.73	.466	-.139	.064
	Transportation	-.010	.045	-.23	.818	-.098	.077
	Construction	.006	.066	.09	.928	-.124	.135
	Mining	.007	.037	.19	.852	-.066	.080
	Other	-.105	.113	-.94	.349	-.326	.115
	OSEXP	-.011	.013	-.82	.409	-.036	.015
	ITROLE	.013	.015	.87	.385	-.016	.041
	KNOW	.199	.038	5.21	.000***	.124	.273
	CC	.038	.018	2.14	.032*	.003	.074
	KNOWxCC	-.585	.386	-1.52	.130	-1.341	.172
	Constant	.626	.099	6.31	.000	.432	.821
Success in Innovation	Finance	-.051	.212	-.24	.811	-.466	.365
	Electronics	.125	.232	.54	.591	-.330	.579
	Transportation	.158	.201	.78	.433	-.237	.553
	Construction	.015	.297	.05	.960	-.567	.596
	Mining	-.241	.168	-1.44	.150	-.570	.087
	Other	-.006	.505	-.01	.990	-.997	.985
	OSEXP	.051	.058	.88	.381	-.063	.165
	ITROLE	.152	.066	2.32	.020*	.023	.280
	KNOW	.960	.167	5.75	.000***	.632	1.287
	CC	.101	.084	1.20	.230	-.064	.267
	KNOWxCC	-.604	1.775	-.34	.734	-4.082	2.875
	Constant	.244	.408	.60	.551	-.556	1.043

OSEXP: Outsourcing Experience; ITROLE: Role of IT; RSENDOW: Perceived Partner Resource Endowment; RELAT: Social Interaction; VISION: Shared Vision; COGN:: Shared Cognition; LI: Learning Intent; KNOW: Knowledge Acquisition; CC: Combinative Capabilities

***: p < .001; **: p<.01; *: p < .05; †: p< .10

Figure 12: Relationship between Shared Cognition and Knowledge Acquisition

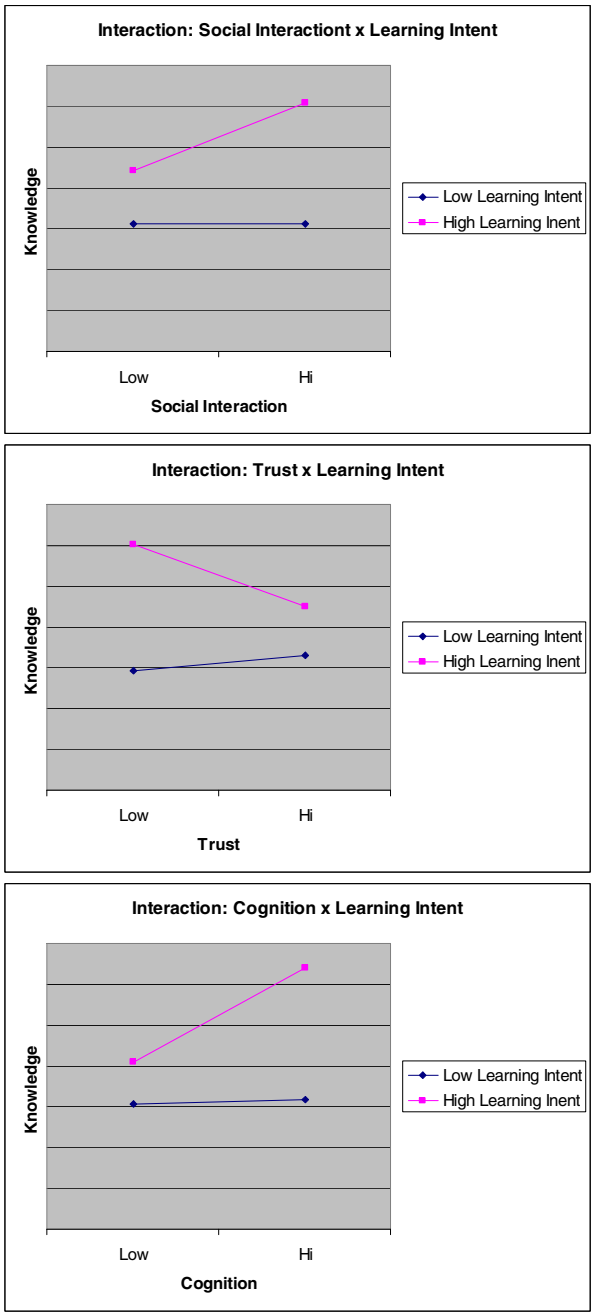


The multicollinearity diagnoses and the examination of inter-variable correlations assure the absence of high correlations among the variables. All tolerance values are above .20 and all VIF values are below the cutoff value of 4, indicating a lack of highly correlated variables. The results of the 3SLS analysis of the relationship between social capital variables and *knowledge acquisition* are summarized in Table 20.

The 3SLS regression results show that *partner resource endowment*, *social interaction*, *shared vision*, and *shared cognition* have significant direct relationships with *knowledge acquisition*. *Learning intent* is an important antecedent of *knowledge acquisition*. In addition, *learning intent* has strong interaction effects with *social interaction*, *trust*, and *shared cognition*. Figure 13 represents a visualization of the interactions terms[5]. The *role of IT* is a significant control variable, indicating that the more strategic role IT plays in the client firm, the more knowledge it will acquire from its partner.

[5] The visualization of the interaction term is created by regressing the dependent variable on the mean of the independent variables, plus/minus one standard deviation of the independent variables, and the interaction term, using coefficients derived from the 3SLS regression.

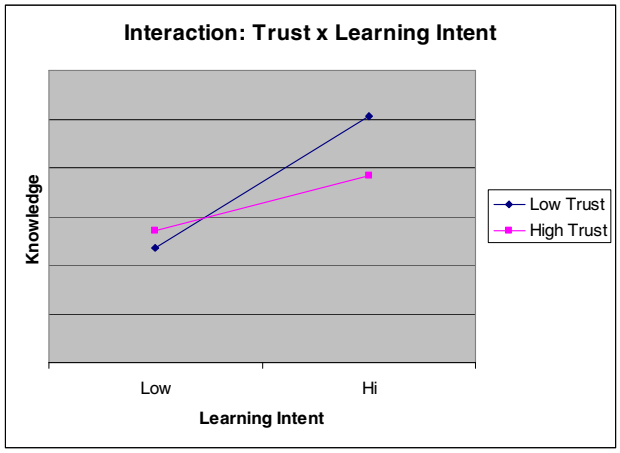
Figure 13: Visualization of Interaction Terms—Client Sample



Contrary to the hypothesized direction of relationship, *trust* is negatively associated with *knowledge acquisition*, indicating that higher level of trust between the client firm and its outsourcer results in lower level of knowledge acquisition by the client firm. This can be explained as follows: when the client firm has a high level of trust in

the vendor, the client depends more on the partner and, as a consequence, makes less effort on its side to learn. The regression coefficient indicates that *learning intent* has a significant negative interaction effect on the relationship between *trust* and *knowledge acquisition*. As shown in Figure 13, when the client firm has a high level of trust on the outsourcing partner, a high level of learning intent will result in a suboptimal level of knowledge acquisition. This suggests that when the level of trust is very high, a high level of *learning intent* may not result in the best learning results because of the client firm's over-reliance on the outsourcing partner. I also explore whether trust moderates the relationship between *learning intent* and *knowledge acquisition* and plot the interaction in Figure 14. As shown in Figure 14, when the client firm has a low level of *learning intent*, the level of *knowledge acquisition* is not very different between different levels of *trust*. However, when the *learning intent* is stronger, firms that have a lower level of *trust* appear to achieve learning results than those with a higher level of trust. This suggests that *Trust* may not always be beneficial to *knowledge acquisition* in an outsourcing partnership. It is possible that too much trust on the outsourcing partner may result in learning inertia at the client firm.

Figure 14: Visualization of Interaction between Learning Intent and Trust



Together, the main effects and the interaction terms explain about 52.61% of the variance in *knowledge acquisition* by the client firm.

6.1.3.2 Knowledge Acquisition and Value Creation

3SLS results show that *knowledge acquisition* has a significant relationship with both *success in business operations* and *success in innovation*. However, no significant moderating effect was found as hypothesized for *combinative capabilities*. *Combinative capabilities* appear to have a significant direct effect on *success in business operations*, but not on *success in innovation*. The *role of IT* is a significant control variable, indicating, not surprisingly, that the more strategic role IT plays in a firm, the more likely the firm is to be successful in business operations and innovation. These variables together explain about 33.56% of the variance in *success in business operations* and 48.92% of the variance in *success in innovation*.

6.1.4 3SLS Analysis: Paired Sample

In this section, I present the results of 3SLS analyses on the paired sample with a sample size of 79. As before, the 3SLS analyses were performed with three equations to test a system of relationships. *Knowledge acquisition*, the endogenous variable of the first equation, is used as an exogenous variable in the second and third equations. The analysis results are summarized in Table 21.

Table 21: Results of Three-Stage Least Squares Regression—Paired Sample (N=79)

Equation	Variable	Coefficient	Std. Err.	Z	P>|z|	95% Confidence Interval	
Knowledge	LI	.136	.086	1.58	.113	-.032	.304
	Electronics	-.267	.211	-1.27	.206	-.682	.147
	Finance	.222	.320	.69	.488	-.405	.849
	Transportation	-.422	.284	-1.49	.137	-.980	.135
	Construction	-.085	.196	-.43	.664	-.468	.298
	Mining	-.021	.483	-.04	.966	-.967	.925
	OSEXP	-.079	.075	-1.05	.294	-.225	.068
	ITROLE	.057	.085	.67	.504	-.109	.223
	RSENDOW	.289	.102	2.84	.005**	.089	.488
	RELAT	.104	.103	1.01	.311	-.097	.305
	TRUST	-.094	.110	-.85	.393	-.309	.121
	VISION	.012	.098	.12	.902	-.180	.204
	COGN	.125	.076	1.65	.099†	-.023	.273
	RSENDOWxLI	-.063	.106	-.60	.549	-.270	.147
	RELATxLI	.050	.171	.29	.769	-.285	.385
	TRUSTxLI	-.015	.193	-.08	.939	-.392	.363
	VISIONxLI	-.132	.168	-.79	.432	-.462	.198
	COGNxLI	.237	.068	3.51	.000***	.105	.370
	Constant	2.247	.694	3.24	.001	.887	3.607
Success in Business Operations	Electronics	-.142	.250	-.57	.569	-.632	.347
	Finance	-.502	.376	-1.34	.181	-1.239	.234
	Transportation	-.085	.323	-.26	.792	-.718	.548
	Construction	-.156	.237	-.66	.512	-.621	.310
	Mining	-.862	.527	-1.64	.102	-1.894	.171
	OSEXP	-.044	.085	-.52	.602	-.211	.122
	ITROLE	.020	.100	.20	.844	-.177	.217
	CC	.523	.175	2.99	.003**	.180	.866
	KNOW	.594	.315	1.89	.059†	-.023	1.210
	KNOWxCC	.115	.313	.37	.713	-.4982	.728
	Constant	.787	.784	1.00	.316	-.750	2.323
Success in Innovation	Electronics	.291	.195	1.49	.135	-.091	.674
	Finance	-.256	.294	-.87	.384	-.831	.320
	Transportation	.245	.252	.97	.331	-.249	.740
	Construction	-.287	.185	-1.55	.122	-.650	.077
	Mining	-.223	.412	-.54	.587	-1.030	.583
	OSEXP	.192	.066	2.90	.004**	.062	.322
	ITROLE	.048	.078	.61	.543	-.106	.201
	CC	.287	.136	2.11	.035*	.020	.553
	KNOW	1.170	.301	3.88	.000***	.579	1.760
	KNOWxCC	-.231	.243	-.95	.343	-.708	.246
	Constant	-.892	.612	-1.46	.145	-2.091	.306

OSEXP: Outsourcing Experience; ITROLE: Role of IT; RSENDOW: Perceived Partner Resource Endowment; RELAT: Social Interaction; VISION: Shared Vision; COGN:: Shared Cognition; LI: Learning Intent; KNOW: Knowledge Acquisition; CC: Combinative Capabilities

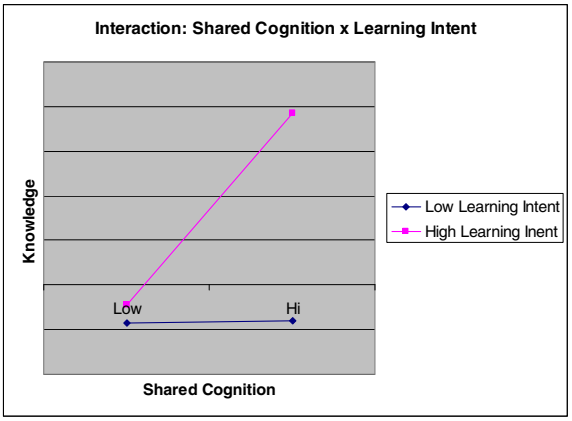
***: $p < .001$; **: $p<.01$; *: $p < .05$; †: $p< .10$

6.1.4.1 Social Capital and Knowledge Acquisition

The multicollinearity diagnoses and the examination of inter-variable correlations suggest that multicollinearity is not a problem in the data. All tolerance values are above the .20 threshold, and all variables have VIF less than the cutoff value 4.

3SLS results show that *partner resource endowment* and *shared cognition* have significant relationships with *knowledge acquisition*. *Shared cognition* has a significant interaction effect with the moderator *learning intent*. Figure 15 is a visualization of the interaction terms. Altogether, these variables explain about 46.75% of the variance in *knowledge acquisition* by the client firm.

Figure 15: Visualization of Interactions—Paired Sample



6.1.4.2 Knowledge Acquisition and Value Creation

The 3SLS results show that *knowledge acquisition* has a significant relationship with both *success in business operations* and *success in innovation*. No significant moderating effect is found as hypothesized for *combinative capabilities*, which has a significant direct effect on both *success in business operations* and *success in innovation*. Prior*IT outsourcing experience* appear to be a significant control factor for *success in innovation*, indicating that the more experienced a firm is in IT outsourcing, the more

likely the firm is to be successful in innovation. These variables together explain about 26.79% of the variance in *success in business operations* and 57.36% of the variance in *success in innovation*. The results collectively suggest that knowledge and combinative capabilities play a more important role in achieving successful outcomes that are knowledge-intensive.

6.2 TESTING MEDIATION

As proposed in Baron and Kenny (1986), I tested the mediating effect of *knowledge acquisition* between the social capital aspects and success. The test was conducted using three regression equations (Baron et al. 1986). In the first equation, *knowledge acquisition* was regressed on the independent variables. In the second, I regressed each dependent variable on the independent variables. In the third equation, I regressed each dependent variable on both the independent variables and the mediating variable—*knowledge acquisition*. I found partial mediation of *knowledge acquisition* for *shared vision* and *shared cognition*. Comparing the standardized coefficients of the second and third regression equations, I detected weaker effects of these two variables on the dependent variables when the mediating variable is controlled in the equation, which indicates partial mediation. However, mediation failed to establish for *resource endowment*, *social interaction*, and *trust*, which exhibit significant direct relationships with the dependent variables. The test of mediation effect reveals that *knowledge acquisition* may mediate only the cognitive aspect but not the structural or relational aspects of social capital.

Path analyses were utilized to further decompose the effect of variables in the casual relationships. Results of path analysis further confirm the findings of the test for mediation, and are reported in Appendix 6.

6.3 ROBUSTNESS TEST: PLS

I use a structural equation modeling technique, partial least squares (PLS), as a robustness test for the hypothesized paths in both the client and the aggregate models. PLS, a latent structural equation modeling technique, uses a component-based approach to estimation (Chin 1998). The advantages of PLS is that it places minimal demands on sample size and makes no assumption about distributional normality (Chin et al. 1995). Using indicators of latent constructs, PLS yields estimates of the structural model parameters, which test the strength of hypothesized relationships. In PLS, the loadings of items of each construct can be interpreted as the loadings in the principal component analysis, and the structural model parameters (i.e., paths) can be interpreted as standardized beta weights in a regression analysis. In the first round of PLS analysis, I found that OSEXP3 and RSENDOW3 have very low outer model loadings, so both indicators were excluded in the future analyses. As shown in Table 22, all items exhibit high loadings (>.70) on their respective constructs.

Recommended for analysis using PLS to further evaluate the discriminant validity of all the constructs (Agarwal et al. 2000; Wasko et al. 2005), an inter-construct correlation matrix was created for each model using the partial least square technique (see Table 23). The values on the diagonal are the square root of the average variance extracted (AVE) of each construct, and the off-diagonal values are the inter-construct correlations. As shown in Table 23, the AVE value of each construct is larger than its

correlations with all other constructs, indicating that the average variance shared between the construct and its indicators is larger than the variance shared between the construct and other constructs (Fornell et al. 1981). Based on the results of exploratory and confirmatory factor analyses, I conclude that all constructs in the model demonstrate satisfactory convergent and discriminant validity.

Table 22: PLS Outer Model Loadings (N=151)

Construct	Indicators	Model	
		Client Model	Aggregate Model
IT Outsourcing Experience	OSEXP1	.8774	.8772
	OSEXP2	.8823	.8824
Role of IT	ITROLE1	.7987	.7987
	ITROLE2	.8022	.8023
	ITROLE3	.8340	.8340
	ITROLE6	.7811	.7810
	ITROLE7	.7647	.7647
Partner Resource Endowment	RSENDOW1	.8160	.8159
	RSENDOW2	.7924	.7924
	RSENDOW4	.7298	.7299
	RSENDOW5	.8131	.8131
Social Interaction	RELAT2	.8063	.8310
	RELAT3	.8840	.9024
	RELAT4	.8443	.8920
	RELAT5	.7630	.7804
Trust	TRUST5	.8491	.8584
	TRUST6	.7147	.7075
	TRUST7	.8745	.8747
	TRUST8	.8054	.8177
Shared Vision	VISION1	.8538	.8779
	VISION2	.8820	.8974
	VISION3	.8779	.8932
Shared Cognition	COGN1	.8409	.8319
	COGN2	.7749	.8154
	COGN3	.8111	.8530
Learning Intent	LI1	.9089	.9089
	LI2	.9295	.9205
	LI3	.9218	.9219
Knowledge Acquisition	TKNOW4	.8113	.8123
	TKNOW5	.8388	.8394
	TKNOW6	.7130	.7140
	BKNOW1	.8516	.8512
	BKNOW2	.7941	.7942
	BKNOW3	.7630	.7624
	NKNOW3	.7679	.7666
Combinative Capability	COMBCAP1	.8133	.8133
	COMBCAP2	.8258	.8258
	COMBCAP3	.8366	.8366
	COMBCAP4	.8259	.8259
	COMBCAP6	.8202	.8202
Success in Business Operations	SUC3	.9041	.9041
	SUC4	.9238	.9238
Success in Innovation	SUC8	.7206	.7206
	SUC11	.8196	.8195
	SUC12	.7949	.7949
	SUC13	.8276	.8276
	SUC14	.8176	.8176
	SUC15	.8825	.8825
	SUC16	.8580	.8580
	SUC17	.7925	.7925
	SUC18	.8113	.8113

Table 23: Inter-construct Correlations for Client Sample (N=151)

	Reliability(# of Indicators)	1	2	3	4	5	6	7	8	9	10	11	12
OSEXP	.873 (2)	**.880**											
ITROLE	.897 (5)	.378	**.796**										
RSENDOW	.868 (4)	.303	.445	**.789**									
RELAT	.897 (4)	.212	.341	.568	**.828**								
TRUST	.886 (4)	.296	.379	.521	.622	**.813**							
VISION	.904 (3)	.320	.334	.579	.585	.567	**.871**						
COGN	.851 (3)	.195	.284	.241	.247	.252	.273	**.810**					
LI	.943 (3)	.170	.248	.467	.355	.414	.370	..080	**.920**				
KNOW	.922 (7)	.322	.380	.470	.412	.418	.476	.336	.472	**.792**			
COMBCAP	.914 (5)	.310	.475	.403	.358	.342	.490	.470	.328	.426	**.824**		
BUSSUC	.910 (2)	.225	.384	.365	.439	.278	.451	.396	.299	.548	.471	**.914**	
INNOSUC	.947 (9)	.339	.485	.479	.465	.326	.445	.371	.325	.647	.468	.605	**.815**

1—OSEXP: Outsourcing Experience; 2—ITROLE: Role of IT; 3—RSENDOW: Partner Resource Endowment; 4—RELAT: Social Interaction; 5—TRUST: Trust; 6—VISION: Shared Vision; 7—COGN: Shared Cognition; 8—LI: Learning Intent; 9—COMBCAP: Combinative Capability; 10—BUSCUS: Success in Business Operations; 11—SUCINNO: Success in Innovation

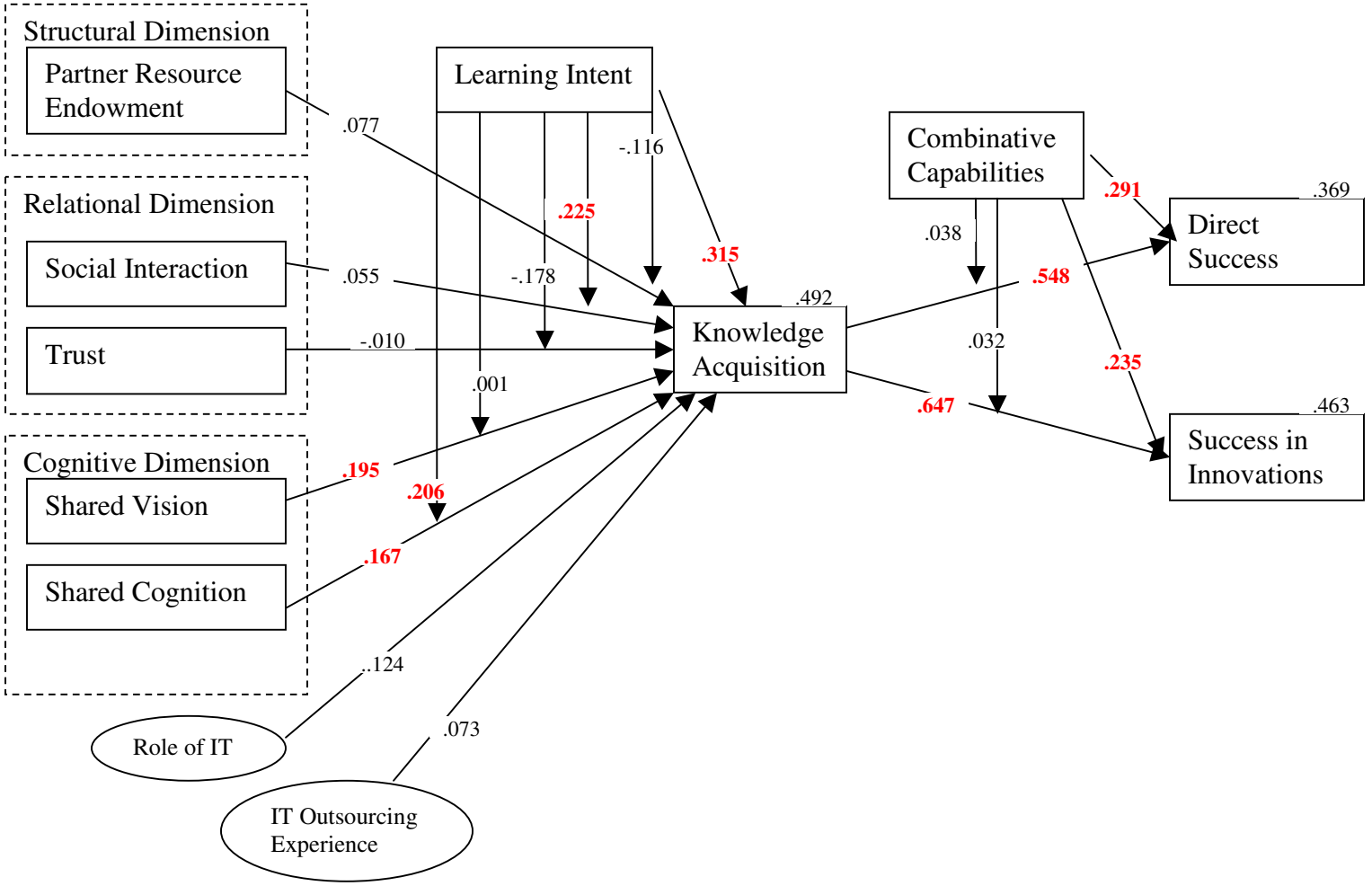
6.3.1 Client Sample

PLS results for the client sample suggest that the perceived *shared vision and shared cognition* between the client firm and its vendor significantly influence *knowledge acquisition* in the IT outsourcing partnership. Additionally, *learning intent* also demonstrates significant interaction effects with *social interaction* and *shared cognition*. *Knowledge acquisition* is strongly related to both *success in business operations* and *success in innovation*, but *combinative capabilities* of the client firm do not show a strong moderating effect on these relationships. Altogether, the independent variables can explain about 49.2% of the variance in *knowledge acquisition*, which in turn explains 36.9% of the variance in *success in business operations* and 46.3% of the variance in *success in innovation*. Figure 16 is a path model of the client model with estimated path coefficients.

6.3.2 Paired Sample

PLS results of the paired sample suggest that *partner resource endowment*, *shared vision*, and *shared cognition* have significant relationships with *knowledge acquisition* in the IT outsourcing partnership. The relationship between *shared vision* and *knowledge acquisition* is in the opposite direction as predicted. An explanation of this is that high similarity of vision between the client firm and the outsource partner confines client firm's willingness and capability to explore opportunities that are beyond the scope of the shared vision in this relationship. Additionally, *learning intent* also demonstrates significant interaction effects on the relationships between *shared cognition* and *knowledge acquisition*.

Figure 16: PLS Path Diagram—Client Sample



Knowledge acquisition is strongly related to both *success in innovation* and *success in business operations*. *Combinative capabilities* of the client firm do not show a strong moderating effect on these relationships, but have significant direct relationships with both *success in business operations* and *success in innovation*. Altogether, the independent variables explain about 49.6% of the variance in *knowledge acquisition*, which in turn explains 25% of the variance in *success in business operations* and 47.7% of the variance in *success in innovation*. Figure 17 is a path model of the aggregate model with estimated path coefficients.

6.4 SUMMARY

In Chapter 6, I discussed the analytical techniques that were used for hypothesis testing and the analysis results. I use Three-Stage Least Squares (3SLS) regression as the major analytical method to test the hypotheses, and use Ordinary Least Squares (OLS) regression to further examine the mediating effect of *knowledge acquisition*. I also ran PLS analysis to test the robustness of the regression results. The results of3SLS regression analysis and PLS are summarized in Table 24. Hypotheses about the exogenous variables *partner resource endowment*, *shared vision*, and *shared cognition* and the endogenous variables *knowledge acquisition*, *success in business operations* and *success in innovation* are fairly consistent across samples and analytical methods. The results of hypotheses about *social interaction* and *trust* are not consistent across analytical methods or sub-samples.

In the chapter that follows, I further discuss the findings and their implications. I also elaborate on the limitations and contributions of the study, as well as future research directions.

Figure 17: PLS Path Diagram—Paired Model

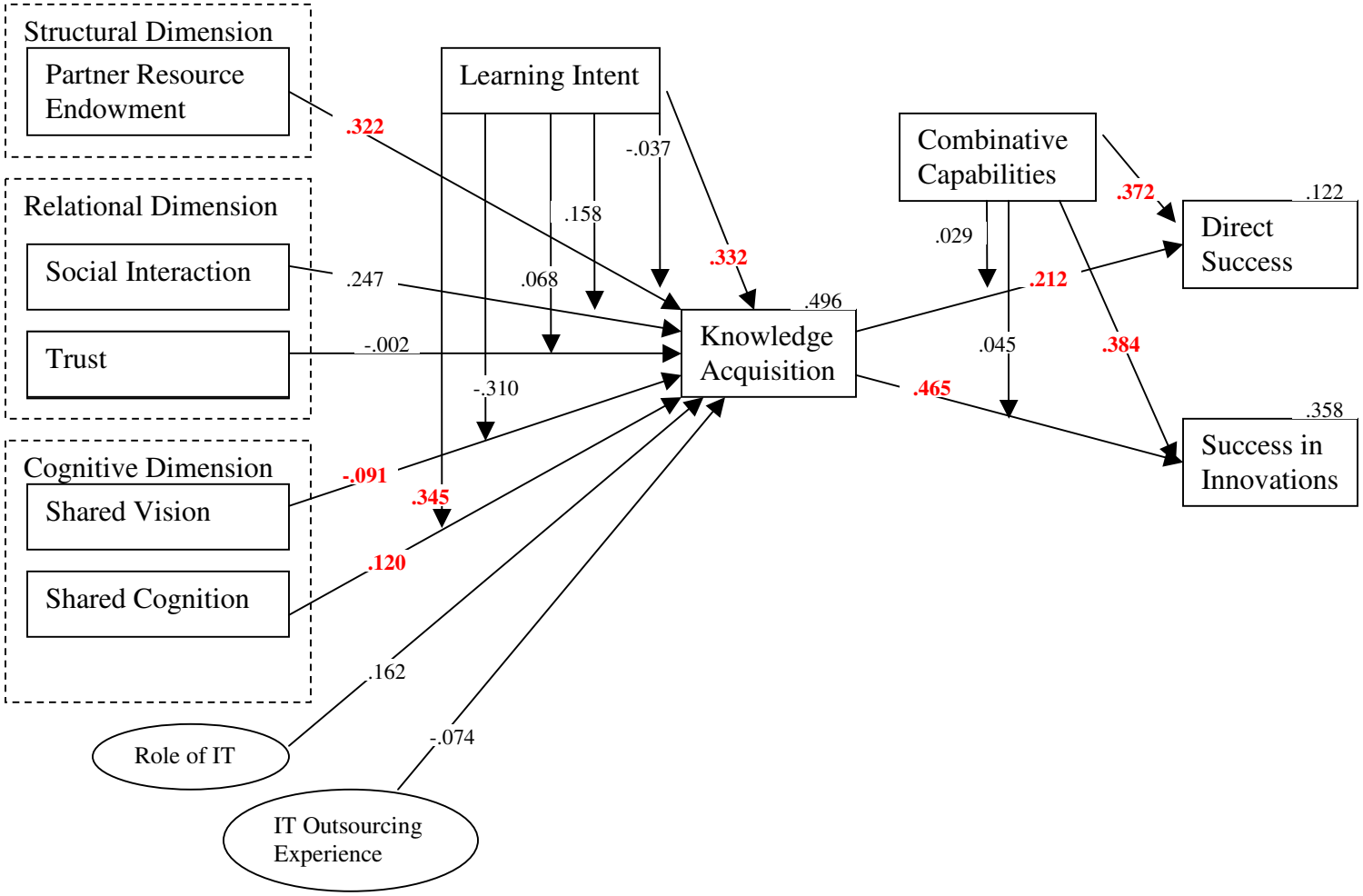


Table 24: Summary of Hypothesis Testing

Hypothesis	Regression				PLS			
	Client Sample		Paired Sample		Client Sample		Paired Sample	
	Supported?	Direction	Supported?	Direction	Supported?	Direction	Supported?	Direction
***1a**: Partner Resource Endowment → Knowledge Acquisition* (+)	**Yes**		**Yes**		n.s.		**Yes**	
***1b**:Partner Resource Endowment* x *Learning Intent → Knowledge Acquisition* (+)	n.s		n.s.		n.s.		n.s.	
***2a**: Social Interaction → Knowledge Acquisition* (+)	**Yes**		n.s.		n.s.		n.s.	
***2b**: Social Interaction* x *Learning Intent → Knowledge Acquisition* (+)	**Yes**		n.s.		n.s.		n.s.	
***3a**: Trust → Knowledge Acquisition* (+)	n.s.		n.s.		n.s.		n.s.	
***3b**: Trust* x *Learning Intent → Knowledge Acquisition* (+)	**Yes**	**(-)**	n.s.		n.s.		n.s.	
***4a**: Shared Vision → Knowledge Acquisition* (+)	**Yes**		n.s.		**Yes**		**Yes**	**(-)**
***4b**: Shared Vision* x *Learning Intent → Knowledge Acquisition* (+)	n.s		n.s.		n.s.		n.s.	
***5a**: Shared Cognition → Knowledge Acquisition* (non-linear)	**Yes**		**Yes**		**Yes**		**Yes**	
***5b**: Shared Cognition* x *Learning Intent → Knowledge Acquisition* (+)	**Yes**		**Yes**		**Yes**		**Yes**	
***6a**: Knowledge Acquisition → Success in Business Operations* (+)	**Yes**		**Yes**		**Yes**		**Yes**	
***6b**: Knowledge Acquisition* x *Combinative → Success in Business Operations Capability* (+)	n.s.		n.s.		n.s.		n.s.	
***7a**: Knowledge Acquisition → Success in Innovation* (+)	**Yes**		**Yes**		**Yes**		**Yes**	
***7b**: Knowledge Acquisition* x *Combinative Capability → Success in Innovation* (+)	n.s.		n.s.		n.s.		n.s.	

CHAPTER 7: DISCUSSION

In this chapter, I first discuss the implications of the research findings. Then I elaborate on the contributions and limitations of the dissertation study. The chapter concludes with a discussion of future research opportunities.

7.1 IMPLICATIONS OF RESULTS

A consistent finding of this research is that *knowledge acquisition* is an important antecedent of successful outcomes in business operations and innovation. In addition, knowledge seems to correlate more with innovation than with business operation, which echoes the prevailing view in the literature that knowledge is the basis for both knowledge exploitation and exploration for innovation. Results show that *combinative capabilities* have a significant direct relationship with success, but do not moderate the effect of *knowledge acquisition*. A possible explanation of this finding is that *combinative capabilities*, by definition, may have high correlation with knowledge and reflect an interaction between knowledge and capabilities. Overall, findings of this study show strong evidence that knowledge is a critical factor for a firm to achieve successful outcomes in IT outsourcing. This study provides empirical support for a recent focus on the knowledge-related aspects of IT outsourcing (Lee 2001; Lee et al. 2002; Willcocks et al. 2004). In addition, the results differentiate between outcomes related to business operation and innovations in products and business processes, suggesting that knowledge has more explanatory power for higher-level success.

The results also indicate that different dimensions of social capital may not be equally important in knowledge creation and each may play a different role in the outsourcing process. The structural dimension (*partner resource endowment*) and cognitive dimension of

social capital (*shared vision* and *shared cognition*) are highly related to both *knowledge acquisition* and the success of IT outsourcing. For outcomes that require intensive knowledge input, the cognitive dimension of social capital exhibits its effect via mediation by knowledge acquisition. *Shared vision* was found to be a critical antecedent for *knowledge acquisition*, although it mightresult in less learning effort on the client side due to a confined set of goals or objectives.

Shared cognition does not exhibit a hypothesized curvilinear relationship with *knowledge acquisition*. Rather, it has a strong linear relationship with *knowledge acquisition*, and also interacts with *learning intent*. *Shared cognition* helps the client firm acquire knowledge from the outsourcing partner. When the employees at the client lack skills and expertise in the relevant domains, it is difficult for them to absorb knowledge from the outsourcing partners. The learning results can be achieved only when the client has adequate background knowledge and required skills to understand and assimilate what the outsourcing partner does in this partnership. The linear rather than curvilinear relationship between *shared cognition* and *knowledge acquisition* suggests that maybe the learning dynamics in an IT outsourcing partnership is different from those in a strategic alliance or technology partnership. Usually the strategic alliances or technology partnerships are characterized by pre-established goals and expectation of knowledge exchange and creation. At the same time, each partner in the alliance wants to protect itself from opportunistic behaviors of its partner, which may deter it from fully disclosing specialized knowledge and information to the partner. The similarity of the knowledge input to the alliance may yield decreasing returns, resulting in an inverted U-shape curve that represents the value of knowledge. In an IT outsourcing partnership, the IT outsourcing partner is obliged to provide information and

services at the client's request. Since the IT outsourcing partner does not have interest conflict with the client, it is more willing to provide information and knowledge. When there is no boundary limit on what knowledge and information can be transferred to the client, the client can benefit from such intellectual input as long as it has the absorptive capacity to assimilate the knowledge, resulting in a linear relationship between *shared cognition* and *knowledge acquisition*. This explanation highlights the importance of the client firm to maintain an IT staff that possesses solid background knowledge in order to integrate technological service provided with the IT outsourcing partner and the internal business processes.

Results reveal some interesting findings about the relational dimension of social capital. Surprisingly, the relational dimension of social capital seems to have a much stronger direct impact on success than on knowledge acquisition. The results suggest that high levels of *trust* may not necessarily be helpful for *knowledge acquisition*. Indeed, too much trust may result in too little effort on the part of the client to get involved and learn when the partner is trusted to be able to handle the work. Delegation to the outsourcing partner may lead to immediate desirable outcomes when success does not require active involvement by the client firm. Findings about *trust* show no significant relationship between *trust* and *knowledge acquisition* and limited support for its interaction with *learning intent*.

Path analysis shows that *social interaction* has a strong direct impact on success and very low correlation with *knowledge acquisition*. This result indicates that higher levels of social interaction allow effective communications between the client and the outsourcing partner, but do not necessarily ensure that the client will learn. An explanation of this result

is that the design of the measurement scales. The survey questions mainly focus on informal social interactions, but did not obtain any information about formal training. Without formal training and systematic learning about the information system and tasks involved, social interactions among employees may lose the foundation of a clear goal of what information is expected to be exchanged and how the information should be deployed. Therefore, informal social interactions may only result in unorganized and ineffective piecemeal acquisitions of knowledge and information that may not be very helpful. This suggests that social interactions may be complementary to formal training and may not have significant impact on knowledge acquisition by itself. In addition, the survey questions do not ask specifically whether social interactions between the client and outsourcer are work- or knowledge-related. It is possible that employees of the client and the outsourcer develop personal friendships at work and maintain such relationships at a non-work-related level. When social interactions are not information-laden and work-related, it can breed trust among employees, but cannot facilitate knowledge transfer among them. By acknowledging the limited information captured in the survey, I interpret the results about social interactions with caution.

The structural dimension of social capital, *partner resource endowment*, exhibits both direct impact and indirect effects (through *knowledge acquisition*) on success. *Partner resource endowment* is a significant predictor of *knowledge acquisition*. Path analyses suggest that changes in *knowledge acquisition* can be attributed to its correlation with *partner resource endowment*, indicating that an experienced outsourcer with required domain of expertise can bring rich knowledge about a specific industry or a product, which in turn can be critical to the success of the outsourcing project. *Partner resource endowment* also has a

direct relationship with success, which is particularly true in more traditional outsourcing cases where most of the work is delegated to the capable outsourcer.

Learning intent exhibits both interaction effects with the exogenous variables and direct impact on *knowledge acquisition*. Path analyses suggest that *learning intent* is a critical antecedent of *knowledge acquisition* by the client firm, and a larger part of changes in success can be attributed to the mediating factor—knowledge. This is corroborated by evidence found in the mini case study interviews. Firms such as COSCON and Bao Sight set clear goals of learning and knowledge acquisition at the time of outsourcing, and used IT outsourcing as a vehicle to obtain experience and skills and to develop capabilities. Such learning-oriented outsourcing projects result in second-order benefits such as improved business processes and development of new business models and new products and services. Moreover, some non-IT firms start their own IT outsourcing services in conjunction with their specialized knowledge and expertise in specific domains of business. There is an emerging trend that firms spin-off the IT unit and establish a subsidiary or a separate entity (e.g. Bao Steel and Bao Sight, Lenovo and AsiaInfo), which willundertake the majority of the IT functions of the parent company and provide specialized IT outsourcing services to other firms in the same industry as well. These IT outsourcing service providers have strong competitive advantage in the niche markets of specialized industries because they have both IT skills and first-hand industry-related knowledge.

In summary, the dissertation proposed a social capital perspective on IT outsourcing, and emphasized the mediating role of knowledge acquisition between social capital and success of IT outsourcing. It provided empirical evidence of how social capital facilitates knowledge acquisition, which in turn results in successful outcomes at the firm level. Results

of the empirical study show different levels for support to hypothesized relationships and suggest that alldimensions of social capital may not be equally important in facilitating knowledge acquisition and rendering successful outcomes. Findings imply that *partner resource endowment*, high levels of *shared vision*, *shared cognition*, and *learning intent* are critical factors that influence the level of knowledge acquired by a firm. In addition, a firm's knowledge stock in conjunction with *combinative capabilities* can have high impact on the outcomes of IT outsourcing, especially IT-enabled innovation.

7.2 CONTRIBUTIONS

This dissertation study proposed a relational perspective on IT outsourcing through the theoretical lens of social capital, and provided empirical evidence of the importance of knowledge in the IT outsourcing context. It contributes to the IT outsourcing literature in the following ways.

First, this dissertation extends the research on social capital and IT outsourcing by applying the concept of social capital and knowledge-based theory to an IT outsourcing context. This empirical study has found evidence of the important impact of social capital on both knowledge acquisition and success, consistent with findings of prior studies (Lee 2001; Tsai 2001; Tsai et al. 1998).

Table 25: Summary of Recent Studies on Social Capital

Author	Level of Study	Conceptualization of Social Capital	Findings
(Oh et al. 2004)	Group	Inter-group horizontal bridging conduit Inter-group vertical bridging conduit Intra-group network (closure)	Group effectiveness is maximized via optimal configurations of different conduits. Having too much of one mode of group social capital can have negative effects on group performance.
(McFadyen et al. 2004)	Individual	Number of relations Strength of relations	The number of exchange partners has a quadratic (inverted U-shaped) relationship with knowledge creation. The strength of relationships has a quadratic (inverted U-shared) impact on knowledge creation.
(Inkpen et al. 2005)	Intra-corporate networks, strategic alliances, industrial districts	Structural dimension: network ties, network configuration, network stability Cognitive dimension: shared goals, shared culture Relational: trust	Specified boundary conditions associated with each network type, with respect to inter-member knowledge transfer. Aspects of social capital may have different impact on knowledge transfer in different types of networks. Each network type has distinct social capital dimensions.
(Hoffman et al. 2005)	Organization	Information channels Social norms Identity Obligations and expectations Moral Infrastructure	Social capital can enhance the entire knowledge management process because it makes collective action more efficient. Organizations with high levels of social capital have more knowledge management capabilities than organizations with low levels of social capital.
(Lang 2004)	Individual Organization	Value introjections Reciprocity Generalized trust Bounded solidarity	Social contexts and social capital enable knowledge integration. Different social contexts combined with different types of social capital enable different types of knowledge integration.
(Batjargal et al. 2004)	Venture capital decision	Prior relationship Third-party referral Strong ties	Entrepreneurs' social capital has significant effects on investment selection decisions of social venture capitalists. Strong ties between entrepreneurs and venture capitalists have significant direct effects on investment process decisions.

An interesting finding of the present research is that different aspects of social capital play different roles in the IT outsourcing process, echoing several recent studies on social capital (Inkpen et al. 2005; Koka et al. 2002; McFadyen et al. 2004; Oh et al. 2004; Wasko et al. 2005). As summarized in Table 25, recent studies have found that social capital is not always beneficial for the social actor (McFadyen et al. 2004; Oh et al. 2004). Sometimes, too much focus on certain aspects of social capital can lead to suboptimal results. Inkpen et al (2005) posit that different aspects of social capital may have different impact on different types of networks. Wasko and Faraj (2005) found that not all aspects are equally important in facilitating knowledge exchange.

This study found empirical evidence to further support findings from prior literature, questioning a universalistic view of social capital. Although social capital in general is considered to be able to create an enabling environment for knowledge transfer and creation, in the research context of this dissertation, it is the cognitive and structural dimensions of social capital that play the most important role. Although both social interaction and trust influence success, their influence on knowledge acquisition is marginal. Contrary to findings of prior studies on social capital in strategic alliances, results of the present research indicate that too much trust can cause over-dependency on the partner, complacency, and learning inertia, thereby becoming a hindrance to knowledge acquisition and learning. Results suggest that boundary conditions have to be specified when one interprets the impacts of social capital (Inkpen et al. 2005). Specifically, in an IT outsourcing arrangement, maintaining a close relationship with the outsourcer may not be the most important determinant of knowledge acquisition. Rather, the client firm needs to find outsourcers that possess required resources and skills and at the same time have adequate absorptive

capabilities to assimilate resources and skills obtained from outside. Findings of this study suggest that each dimension of social capital should be examined at a more granular level to achieve a more in-depth understanding of each, and calls for research that explores the reasons for this phenomenon to a greater extent.

Second, this study developed measurement scales for social capital in the context of IT outsourcing partnerships. The definition and measurement of social capital seem to vary across different research contexts and levels of study (Nahapiet et al. 1998), and there has not been a consistent set of constructs or measurement scales proposed. This study has developed context-specific measures and provided empirical evidence of construct validity and reliability. Most of the measurement scales are very detailed and allow the researcher to gain deeper understanding of the phenomenon. The research findings also suggest that there might be some missing factors that are beyond the scope of the proposed research model but can be incorporated in future theorizing and research to provide a better insights for both the research community and practitioners. Additionally, this dissertation introduces learning intent as a moderator between social capital and knowledge acquisition. Results show that strong learning intent may further help enhance the facilitating role of social capital in knowledge acquisition.

Third, the empirical study obtained a matched sample for the social capital constructs, and the outsourcers' responses were used to corroborate those of the client firms. A matched sample also allows comparisons between sub-samples and enables me to examine perceptions of the relationship by the partners. The matched pair test reveals that the outsourcers tend to have more positive perceptions of relationships in IT outsourcing partnership than the client firms. The vendor firms in the sample provided systematically

high ratings on trust, social interaction, and shared vision than their counterparts. This finding suggests that vendor may be over-optimistic about their relationships with the clients when the clients are actually less satisfied with the relationships. On the other hand, the matched pair test also shows that the clients tend to over rate their cognitive capabilities, while the outsourcers perceive that the vendors have lower shared cognition.

These findings also yield some managerial implications for both the client firms and the outsourcers. To the extent that social capital in an IT outsourcing relationship can be malleable, the client firm can intentionally develop different aspects of social capital to achieve different goals. Although the client firm may achieve desirable business outcomes via building strong relational social capital in an IT outsourcing relationship, it can be successful in capability development or innovation if it utilizes this partnership as a learning vehicle to acquire knowledge from the outsourcing partner. Successful knowledge acquisition requires the client firm to locate the source of needed knowledge and skills outside the organizational boundary and maintain an internal IT staff with a solid knowledge background, in order to assimilate and integrate the acquired knowledge within the client firm. The outsourcer should also recognize thatit takes tremendous effort to satisfy the client firm, even if the outsourcer may not be aware that the client's perception of the relationship is not as optimistic as that of its own. The outsourcer should proactively make efforts to build a strong and long-term oriented relationship with the client firm.

7.3 LIMITATIONS

I acknowledge several limitation of this study and interpret the results with caution.

First, I used a cross-sectional research design to study a phenomenon that evolves over time. The responses of the survey capture a snapshot of aspects of a firm's social

capital, knowledge stock and outcomes of IT outsourcing at the time of data collection. Due to the nature of the research design, the causality among the constructs is not clear. However, I have found supporting evidence of causality from social capital to knowledge and knowledge to success in the interviews with IT executives of several organizations. Therefore, all hypothesized relationships are interpreted as correlations and associations. Longitudinal studies or detailed case studies are needed to depict the evolutionary trajectory of the IT outsourcing process in order to establish causality among constructs in the proposed research model.

Second, I used a convenience sampling method to gain access to potential sample firms. All of the sample firms are large and successful business organizations located in China. Due to the specific geographical region and lack of variation in terms of firm size, the research findings have limited generalizability to firms in other countries or of different size. However, I have confidence that this sample is representative of the large Chinese firms, which are the major user of IT outsourcing services at the present.

Third, survey responses are based on self-reported measures of one key informant as the single respondent of the firm. Common method bias may arise because most of respondents are IT executives or IT managers who are actively involved in the IT outsourcing projects, and their reputation and performance evaluation may depend on the outcome of the projects. Therefore, there is a possibility that respondents tend to report in favor of his/her own interests in order to make the results look better. A close examination of the data suggests that most of the respondents are reasonably truthful about their perceptions of the IT outsourcing aspects under study.

Finally, some of the survey items are broad and may fail to capture details of the phenomenon understudy. For example, the items that measure social interaction focus on informal social interactions only and do not extract information about the content exchanged during the social interaction, which could be critical in determining the impact of social interaction on knowledge acquisition.

7.4 FUTURE RESEARCH DIRECTIONS

This empirical study allowed me to obtain a rich set of data to understand social capital in the IT outsourcing partnerships. Based on the research finding and the discussion of contributions and limitations above, there are several avenues to conduct research on IT outsourcing in the future.

First, given the finding about different roles of social capital dimensions on knowledge and success, researchers can test if the findings can be replicated in a different research setting with a different sample. If similar study can be conducted on firms in countries where IT outsourcing is more mature and widely practiced, a cross-cultural comparative study with findings from different sources to isolate differences that are specific to the sample would be useful. In addition, future research can be conducted to address the above-mentioned limitations of the present study. A longitudinal study and detailed case studies will help further our understanding of the IT outsourcing process.

Second, the proposed model can be applied to the IT outsourcing partner as well. To the outsourcer, providing IT outsourcing services can also be viewed as an opportunity to learn from its partner. Can social capital play a similar role in the outsourcer's learning process and success? Will the client firm be willing to share knowledge and information? How can the partnership achieve a win-win situation in which each gets what it wants?

These questions address the duality of knowledge acquisition in the IT outsourcing, but remain unanswered in prior research. Research that tackles these problems will further our understanding of the relationship between partnerships and learning in IT outsourcing.

Third, the present study has detected an interesting trend of the IT outsourcing business model, in which clients of IT outsourcing services learn through the IT outsourcing experience to become IT outsourcing service providers. How does a firm identify and develop IT capabilities through a learning-oriented IT outsourcing strategy, and how does such a strategy evolve over time? Longitudinal studies that track the trajectory of a learning-oriented IT outsourcing strategy may provide a much richer set of information about how knowledge and learning through IT outsourcing can reshape the competitive landscape of an organization.

Appendix 1: Summary of IT Outsourcing Literature

Study	Major Contention	Method	Theory	Constructs	Motivations	Deciding Factors	Function /Degree	Advantages	Downsides	Guidelines	Outsourcing Trends	Contract	Relationships	Role of Knowledge
(Loh et al. 1992a)	Outsourcing is dependent on business governance, particularly financial leverage. Degree of IT outsourcing is negatively related to IT performance.	Secondary data		Business cost structure, business performance, business governance, IT competence, IT performance		√	√							
(Lei et al. 1995)	Presents a framework examining the relationship between corporate restructuring and outsourcing of key value-adding activities. Continued reliance on outsourcing can lock out firms from participating in new technologies and new industries	Conceptual	Strategic alliance, organizational learning	M&A, LBO					√					√
(Bozarth et al. 1998)	Examines relationships between sourcing typology, sourcing strategy, and procurement performance.	Survey	Global sourcing	Procurement strategy	√									
(Kotabe 1998)	Presents a comparison of global sourcing strategies between US and Japan. Global sourcing strategy requires close global coordination of R&D, manufacturing, and marketing.	Conceptual	Global sourcing	None										
(Kotabe et al. 1998)	Examines factors influencing global sourcing of services by U.S. service firms and the effect of such strategy on market performance.	Survey	Global sourcing	Innovativeness of core/supplementary services, external availability of core/supplementary services, service quality, strategic/financial performance										

Study	Major Contention	Method	Theory	Constructs	Motivations	Deciding Factors	Function /Degree	Advantages	Downsides	Guidelines	Outsourcing Trends	Contract	Relationships	Role of Knowledge
(Poppo et al. 1998)	Develops and tests competing hypotheses regarding boundary choice and governance performance.	Survey	Transaction cost theory, knowledge-based view, agency theory, institutional theory	Asset specificity, measurement difficulty, technological uncertainty, economies of scale, magnitude of skill set, market/firm performance, boundary choice		√								√
(Barney 1999)	Describes conditions under which a firm's boundary choice should be affected by its capabilities and capabilities of its potential partners.	Conceptual	Transaction cost economics, capabilities											
(Kessler et al. 1999)	Examines employee responses to outsourcing and three factors that influence the response.	Case Survey	None	Existing context, new context, and experience.										
(Murray et al. 1999)	Uses a modified transaction cost analysis to examine the location and ownership aspects of service sourcing strategy.	Survey	Transaction cost analysis, global sourcing	Asset specificity, capital intensity, inseparability, uncertainty, transaction frequency, and market performance		√								
(Baden-Fuller et al. 2000)	Challenges the traditional view that outsourcing core activities is risky.	Case study	Strategic capability & competency	Catch-up, changing value chains, technology shifts, emerging markets		√	√			√				
(Insinga et al. 2000)	Proposes a systematic methodology that can guide at the operational level to achieve strategically appropriate actions	Conceptual	Strategic capability & competency	Internal capability, external competitive advantage										
(Logan 2000)	Addresses failed outsourcing relationships and suggested two possible solutions.	Conceptual	Agency Theory	None								√	√	

Study	Major Contention	Method	Theory	Constructs	Motivations	Deciding Factors	Function /Degree	Advantages	Downsides	Guidelines	Outsourcing Trends	Contract	Relationships	Role of Knowledge
(Petersen et al. 2000)	Establishes the importance of and relationships between several factors that drive the effectiveness of global sourcing strategies.	Survey	Global sourcing	TMT commitment, structures and processes, international language skills, global sourcing capabilities				√						
(Quinn 2000)	Strategically outsourcing innovation can put a company in a sustainable leadership position.	Conceptual	Innovation	None						√				
(Useem et al. 2000)	Outsourcing of services necessitates lateral leadership and lateral leadership capabilities required for outsourcing.	Interview	Leadership capabilities	Strategic thinking, deal making, partnership managing, and managing change										
(Lonsdale 2001)	The balance of power in an exchange relationship can shift over time to favor the supplier. Investigates the importance of asset specificity for buyer-supplier relationships in outsourcing decisions.	Case study	Transaction cost economics	Asset specificity, uncertainty, information asymmetry				√	√					
(Katabadse et al. 2003)	Outsourcing is considered a powerful influence on the development of organizations, and the nature of best practice outsourcing is examined.	Survey	None	Outsource-ready, integrative skills, managing transactional agreements, managing supplier relations, managing internal relations, performance								√	√	
(Linder 2004)	Proposes a typology of initiatives of transformational outsourcing	Case study	None	Start-ups, pathway to growth, change catalyst, and radical renewal	√					√				

Study	Major Contention	Method	Theory	Constructs	Motivations	Deciding Factors	Function /Degree	Advantages	Downsides	Guidelines	Outsourcing Trends	Contract	Relationships	Role of Knowledge
(Clemons et al. 1993)	IT has the ability to lower coordination cost without increasing the associated transactions risk, leading to more outsourcing and less vertically integrated firms.	Conceptual	Transaction Cost Economics	Governance structure, coordination cost, operation risk, opportunism risk								√	√	
(Ketler et al. 1993)	Examines factors that influence the outsourcing decision.	Case study	None	None		√	√	√	√		√	√		√
(Lacity et al. 1993a)	Summarizes factors that influence the IS outsourcing motivation, decision and outcome.	Case study	None	None	√	√	√	√	√					
(Lacity et al. 1993b)	Questions the widespread endorsement of outsourcing by exposing several myths generated by press reports.	Case study	None	None			√		√	√		√	√	
(Reponen 1993)	Identifies a growing trend toward a mixed mode of operation, combining outsourcing and insourcing.	Case study	None	None	√	√								
(Altinkemer et al. 1994)	Attempts to determine the perceived value of outsourcing based on how outsourcing information is communicated to the shareholders.	Content analysis	None	None	√		√	√	√			√		
(Arnett et al. 1994)	Survey of CIOs reveals structural and managerial characteristics of organizations that outsource IS activities.	Survey	None	None			√							
(Grover et al. 1994a)	Presents an overview of outsourcing phenomenon.	Survey	None	Size, industry, information intensity, and degree of outsourcing			√	√	√		√			
(Grover et al. 1994b)	An early attempt to understand motivations of IT outsourcing.	Survey	Resource-based view, organizational strategy		√		√							

Study	Major Contention	Method	Theory	Constructs	Motivations	Deciding Factors	Function /Degree	Advantages	Downsides	Guidelines	Outsourcing Trends	Contract	Relationships	Role of Knowledge
(McLellan et al. 1994)	Two challenges will provide future growth and rationale for IT outsourcing. For IT outsourcing to be a powerful tool in financial industry, it has to be structured, promoted, and perceived as such.	Conceptual	None	None	√				√					
(Patane et al. 1994)	The growing trend of offshore programming has raised concerns about the future of the US software industry.	Survey	Global sourcing, labor market	None	√		√				√			
(Venkatraman et al. 1994)	Breaks IT-enabled transformation into five levels, describes the characteristics of each level, and provides guidelines for maximizing benefits.	Conceptual	None	None										
(Apte et al. 1995)	Proposes taxonomy of disaggregation and develops a theoretical framework for selecting service activities, choosing location and managing culture.	Conceptual	Service disaggregation	Information intensity, customer contact needs		√		√	√	√				
(Behara et al. 1995)	Reviews trends in IT outsourcing and evaluated its implications for management.	Conceptual	None	None	√							√		
(Chaudhury et al. 1995)	Describes the process of outsourcing and identifies various stages involved. Proposes a bidding mechanism to reduce expected outsourcing costs.	Modeling	None	None										
(Clark et al. 1995)	Reviews the structure of outsourcing decision and analyzes the driving forces.	Interview	None	Technology forces, technology management forces, industry forces, organizational forces	√	√	√	√	√	√		√	√	

Study	Major Contention	Method	Theory	Constructs	Motivations	Deciding Factors	Function /Degree	Advantages	Downsides	Guidelines	Outsourcing Trends	Contract	Relationships	Role of Knowledge
(Collins et al. 1995)	Investigates the extent and effects of IS outsourcing among users of large firms in the US, as well as outsourcing plans of nonusers.	Survey	None	None	√	√	√	√	√					
(Cross 1995)	Describes how British Petroleum Exploration Operation achieved seamless service from multiple suppliers. Highlights the IT outsourcing strategy with multiple suppliers acting as one.	Case study	None	None			√					√	√	√
(DeLoof 1995)	Presents a framework to describe different types of outsourcing. Derives a theoretical foundation for IS outsourcing decision from organizational theories.	Case study	Summary of multiple theories	None			√					√	√	
(Klepper 1995)	Partnering relationships are advantageous under some circumstances. Examines the development of partnerships from the client firm's perspective and investigates the possibilities for managing the partnering process.	Case studies	Cooperative inter-firm relationship	Attraction, communication and bargaining, expectation, norm, power and justice, and commitment									√	√
(Lacity et al. 1995b)	Seeks to apply TCE to IT outsourcing context.	Case study	Transaction Cost Economics	Asset specificity, frequency of recurrence, number of suppliers	√							√		
(Lacity et al. 1995c)	Proposes a framework to replace the flawed strategic-versus-commodity approach.	Case study	None	None						√				
(McFarlan et al. 1995)	Suggests when to outsource and how to structure and manage the outsourcing alliances. It is most important to view outsourcing agreement as a strategic alliance and manage it as such.	Conceptual	Strategic alliance	None	√	√	√			√		√	√	√

Study	Major Contention	Method	Theory	Constructs	Motivations	Deciding Factors	Function /Degree	Advantages	Downsides	Guidelines	Outsourcing Trends	Contract	Relationships	Role of Knowledge
(Pinnington et al. 1995)	Investigates IT outsourcing by large firms. The growth of IT vendor industry is creating a new professional service firm relationship for the IS function.	Case study	None	None	√	√	√					√	√	
(Willcocks et al. 1995a)	Focuses on total IT outsourcing to examine the structure of cooperation, the relationship formed, Proposed a revised model for strategic partnerships.	Case study	Strategic alliance, cooperation	None								√	√	
(Willcocks et al. 1995b)	Examines factors to be considered when determining how outsourcing should be used. Suggests that a strategic approach toward IT sourcing can pay long-term dividends.	Case study	None	None		√	√			√		√		
(Willcocks et al. 1995c)	Focuses on the economics of outsourcing, and contracting and performance measurement issues.	Case study	None	None	√		√	√	√	√		√		
(Earl 1996)	Rephrases the IT sourcing question to: "Why should we not insource IT services?" and presents risks of outsourcing.	Conceptual	None	None					√					√
(Grover et al. 1996)	Examines the relationships between IT functions and outsourcing success. Both service quality and elements of partnership are important for outsourcing success.	Survey	Transaction Cost Economics, resource-based view, network interaction theory	Strategic/economic/technological benefits, service quality, partnership, outsourcing success			√	√			√		√	
(Lacity et al. 1996)	Examines sourcing decisions and develops a set of frameworks to clarify sourcing options and aid managers in deciding which IT functions to outsource.	Case study	None	None			√		√					

Study	Major Contention	Method	Theory	Constructs	Motivations	Deciding Factors	Function /Degree	Advantages	Downsides	Guidelines	Outsourcing Trends	Contract	Relationships	Role of Knowledge
(Meadows 1996)	Presents a framework for sourcing software development in emerging economies.	Conceptual	Global sourcing	Task partitioning, task integration			√	√	√	√				
(Slaughter et al. 1996)	Examines the reasons for outsourcing from a labor market economics perspective.	Survey	Labor market, employment	Environment change, technical change		√								
(Ang et al. 1997)	Examines critical contingencies arising from hyper-competition that moderate institutional influences on IT outsourcing in commercial banks.	Survey	Institutional theory	Perceived gain in production economies, financial capacity, specific assets, functional complexity, technological uncertainty, supplier presence		√								
(Apte et al. 1997)	Presents results of empirical study comparing practices of domestic and global IT outsourcing in US, Japan and Finland.	Survey	None	None	√		√	√	√					
(Hu et al. 1997)	Explores the sources of influence in the adoption of IS outsourcing. Compares different models that describe the diffusion process of IT outsourcing.	Empirical, modeling	Diffusion of innovation	External influence, internal influence		√								
(Michell et al. 1997)	Focuses on outsourcing vendors, their characteristics, and the vendor selection process.	Conceptual	None	None			√				√			
(Ramanujan et al. 1997)	Reports on issues involved in selective sourcing of maintenance operations.	Case study	None	Technical, organizational factors, quality of maintenance, user attitude, successful outsourcing implementation								√	√	

Study	Major Contention	Method	Theory	Constructs	Motivations	Deciding Factors	Function /Degree	Advantages	Downsides	Guidelines	Outsourcing Trends	Contract	Relationships	Role of Knowledge
(Saunders et al. 1997)	Organizations need to look beyond simple recipes to ensure outsourcing success. Conditioned prescriptions are needed.	Case study	None	Perceptions of service provider, nature of contract, type of IT function, type of relationship	√		√			√		√	√	
Sobol & Apte (1997)	Presents results from CIOs about IT outsourcing perspectives and views of IT outsourcing.	Survey	None	None	√		√	√	√					
(Venkatraman 1997)	Synthesizes observation and analysis of IT organization into a framework for managing IT resources and activities as a value center.	Conceptual	None	Cost center, service center, investment center, profit center		√	√	√					√	
(Ang et al. 1998)	Examines economic determinants of IT outsourcing.	Survey	Production economies, transaction economies	Production cost, transaction cost, financial slack, and degree of outsourcing		√								
(Antonucci et al. 1998a)	Summarizes pros and cons of IT outsourcing.	Conceptual	None	None				√	√					
(Antonucci et al. 1998b)	Presents results of a survey of firms about IT outsourcing, trends, reasons, benefits, and risks.	Conceptual	None	None	√		√	√	√		√			
(DiRomualdo et al. 1998)	Three objectives—improving IS, enhancing business performance, and generating new revenue—can help a company assess outsourcing.	Case study	None	IS improvement, business impact, commercial exploitation						√		√	√	√
(Feeny et al. 1998)	Instead of focusing on IS as core or non-core, the debate should center on which IS capabilities are core to the business's future capacity to exploit IT successfully.	Conceptual	None	Nine core IS capabilities										

Study	Major Contention	Method	Theory	Constructs	Motivations	Deciding Factors	Function /Degree	Advantages	Downsides	Guidelines	Outsourcing Trends	Contract	Relationships	Role of Knowledge
(Hays 1998)	Before making IT outsourcing decisions, firms should make effort to turn around the performance of the internal IT unit.	Conceptual	None	None							√			
(Lacity et al. 1998)	Examines organizational factors that influence the success of IT outsourcing.	Case study	None	Expected cost saving achieved	√	√	√				√	√	√	
(Smith et al. 1998)	Firms outsource to reduce costs and generate cash. Firms are more likely to outsource when they have lower cash reserves, higher debt, or declining growth.	Secondary data	None	Cost effectiveness, productivity, profitability, growth, cash management, market ratio	√									
(Willcocks et al. 1998)	Organizations have begun to consider vendors as their partners. Many firms enter into more intricate deals that include both contractual and informal issues.	Case study	Relational perspective, interaction approach	None			√					√	√	
(Finlay et al. 1999)	TCE fails to take into account the special features of knowledge-intensive goods and services. Proposes a framework for IT sourcing decision making.	Conceptual	Augmented TCE	Economic, market, knowledge, organizational, and environmental factors		√							√	√
(Lee et al. 1999)	Establishes partnership quality as a key predictor of outsourcing success. Proposes a theoretical framework for outsourcing partnership based on a social perspective.	Survey	Social exchange theory, power political theory	Partnership quality, determinants of partnership quality, outsourcing success		√							√	
(McCray et al. 1999)	Uses system dynamics to capture the inherent complexity of the outsourcing decision and construct a computer-based model of an outsourcing decision process.	System dynamics model experiment	None	None	√			√	√				√	√

Study	Major Contention	Method	Theory	Constructs	Motivations	Deciding Factors	Function /Degree	Advantages	Downsides	Guidelines	Outsourcing Trends	Contract	Relationships	Role of Knowledge
(Ngwenyama et al. 1999)	Compares single vendor vs. multiple vendor strategies in IT outsourcing decision making. Develops a framework for managers to model outsourcing decisions to maximize profit and minimize risk.	Modeling	Transaction Cost Economics	Outsourcer's value function, outsourcing strategy, outsourcer's profit					√			√		
(Shepherd 1999)	Examines various IT outsourcing approaches and their respective effectiveness in facilitating change.	Case study	None	None	√	√	√		√			√	√	
(King et al. 2000)	Develops a framework for the consideration of internal market as an alternative to IT outsourcing. Compares alternatives in terms of operational, tactical, and strategic impacts.	Conceptual	Internal market approach	IS outsourcing, internal market, short-term operational impact, mid-term tactical impact, long-term strategic impact	√			√	√					√
(Lacity et al. 2000)	Studies current market practices and experience by surveying CIOs.	Survey	None	None			√	√	√			√		
(Baldwin et al. 2001)	Investigates underlying motives and decision-making process that influenced a bank to outsource its IS.	Case study	Call for theory beyond TCE	Economic, political, and organizational issues	√		√	√	√					
(Barthelemy 2001)	Unforeseen costs can undercut anticipated benefit from outsourcing.	Conceptual	None	None				√	√	√				
(Barthelemy et al. 2001)	Conducts a cross-national study of IT outsourcing and highlights major differences between French and German IT outsourcing practices.	Survey	None	Attitude towards outsourcing, type of activities, motivation, decision-making	√	√	√							
(Currie et al. 2001)	Explores the supply side of IT in application outsourcing and how application outsourcing changes the nature of contract and relationship.	Survey, case study	None	Waves of IT outsourcing, taxonomy of ASPs, performance criteria for ASPs			√				√		√	

Study	Major Contention	Method	Theory	Constructs	Motivations	Deciding Factors	Function /Degree	Advantages	Downsides	Guidelines	Outsourcing Trends	Contract	Relationships	Role of Knowledge
(Lee 2001)	Examines the relationship between knowledge sharing and outsourcing success.	Survey	Knowledge sharing, strategic alliance	Knowledge sharing, organizational capability, partnerships quality, outsourcing success			√						√	√
(Ang et al. 2002)	Develops a typology of IS employment strategies. Specific dimensions that differentiate among the various forms of employment strategies are discussed and elaborated.	Conceptual	Employment & labor market	Locational detachment, temporal detachment, and administrative detachment	√						√			
(Aubert et al. 2002)	Defines the concepts of risk and of risk exposure and applies them to the context of IT outsourcing. Presents a framework of IT outsourcing risk exposure.	Case study	Risk management	Risk factors					√			√		
(Carmel et al. 2002)	Identifies four stages of offshore outsourcing maturation and describes managerial tactics associated with each stage.	Interviews	None	Offshore bystander, offshore experimenter, proactive cost focus, and proactive strategic focus	√				√	√	√			
(Dibbeern et al. 2002)	Deduces critical determinants of IS outsourcing based on multiple theories, and presents a multi-theoretical framework.	Survey	Transaction cost economics, resource-based view, power	Outsourcing behavior, human asset specificity, strategic significance, resource deficits, power		√	√							
(Elitzur et al. 2002)	Examines different types of interactions in various outsourcing arrangements. Focuses on the knowledge flow from the outsourcing company to the vendor.	Conceptual	Game theory	None									√	√

Study	Major Contention	Method	Theory	Constructs	Motivations	Deciding Factors	Function /Degree	Advantages	Downsides	Guidelines	Outsourcing Trends	Contract	Relationships	Role of Knowledge
(Goles et al. 2002)	Uses relational view to lay a conceptual basis for identifying individual constructs that comprises a relationship. Develops a set of items to measure constructs.	Survey	Relational exchange theory	Relationship attributes (commitment, consensus, cultural compatibility, flexibility, interdependence, trust), relationship processes (communication, conflict resolution, coordination, cooperation, integration)									√	
(Jayatilaka 2002)	Analyzes the change paths that firms have taken to look at the dynamic nature of the sourcing arrangements. Majority of the firms had considered cost as an initial criteria and later had shifted their perspective on outsourcing..	Case study	Institutional theory	Vendor, mode of outsourcing, degree of outsourcing, contract	√		√					√		
(Jurison 2002)	Describes a conceptual framework for IT outsourcing decisions and show how it can be extended from a cost oriented type of outsourcing to strategic outsourcing. Offers a framework for considering outsourcing risk in a systematic way.	Conceptual	Financial theory, transaction cost economics	Risk, return, cost				√						
(Kern et al. 2002b)	Seeks to understand the operational characteristics of IT outsourcing relationships.	Case study	Interaction approach	Interaction process, parties involved, environment, atmosphere						√		√	√	
(Kern et al. 2002c)	Presents an example of a winner's curse scenario, in which both supplier and client converted the relationship into a "no curse" arrangement.	Case study	Auction theory	Strategic intent, technical capability				√	√	√		√	√	

Study	Major Contention	Method	Theory	Constructs	Motivations	Deciding Factors	Function /Degree	Advantages	Downsides	Guidelines	Outsourcing Trends	Contract	Relationships	Role of Knowledge
(Klein 2002)	Summarizes theoretical perspectives and research methods used in IT outsourcing research. Identifies strengths and weaknesses of current outsourcing research and points out future research directions.	Conceptual	Summary of multiple theories	None										
(Lee et al. 2002)	Lays an integrative groundwork for the understanding of outsourcing based on an extensive review of past and current outsourcing research.	Conceptual	Partnership	None							√		√	
(Marcolin 2002)	Illustrates different behaviors and business objectives with two extreme cases. Relationship management is shown to benefit all and gains control of the spiraling effects.	Case study	Joint venture and relationships	None								√	√	
(Poppo et al. 2002a)	Shows how mangers have learned to mediate hazards by better choices, better contracts, and better relationship management.	Survey, case study	Transaction cost economics	Performance, negotiation costs, relational norms, contractual complexity, asset specificity, measurement difficulty, technological change								√	√	
(Saaksjarvi 2002)	Proposes and applies the strategic alignment model and presents an integrative view of the interplay between business and IT in organizations.	Survey	Strategic alignment	Success of IS outsourcing, IS effectiveness, internal alignment mode, integration mode										
(Saunders 2002)	Focuses at the organizational level on the outsourcing provider and at the individual level at the workers who are subcontracted to do the outsourcing work.	Case study	Employment & labor market	Contractual and normative activities of providers and IT workers								√	√	

Study	Major Contention	Method	Theory	Constructs	Motivations	Deciding Factors	Function /Degree	Advantages	Downsides	Guidelines	Outsourcing Trends	Contract	Relationships	Role of Knowledge
(Choudhury et al. 2003)	Examines the evolution of portfolio of controls over the duration of outsourced IS systems development projects.	Case study	Control	Control modes, task characteristics, participant knowledge, role expectation	√							√		√
(Gopal et al. 2003)	Studies the determinants of contract choice in offshore software development projects and examines how the choice of contract and other factors in the project affect project profits accruing to the vendor.	Survey	Incomplete contract	Task uncertainty, incomplete contracts, bargaining power, contract type, actual performance								√		√
(Ho et al. 2003)	Examines the response to institutional influences on IS outsourcing in light of hypercompetition.	Survey	Institutional theory	Perceived gain, financial capacity, asset specificity, functional complexity, technical uncertainty, supplier presence		√	√							
(Lacity et al. 2003)	Discusses pros and cons of approaches to transformation: DIY, management consultants, fee-for-service outsourcing, joint venture, and enterprise partnership.	Case study	None	None				√	√	√		√	√	√
(Lee et al. 2003)	Reviews the history of IT outsourcing practices and summarizes the driving theories behind various stages of the history.	Conceptual	Strategic, economic, social perspectives	None						√	√		√	
(Levina et al. 2003)	Examines value propositions of the vendor in its strategy and practices in a long-term outsourcing engagement.	Case study	Organizational design	Complementarity, client-vendor relationship	√	√	√					√	√	√

Study	Major Contention	Method	Theory	Constructs	Motivations	Deciding Factors	Function /Degree	Advantages	Downsides	Guidelines	Outsourcing Trends	Contract	Relationships	Role of Knowledge
(Lacity et al. 1995a)	Vendors submit bids based on efficient managerial tactics, which internal IS department should be able to implement without outsourcing to a third party vendor.	Case study	None	None	√	√				√				
(Lacity et al. 2001)	Summarizes trends, presents models of outsourcing decision and relationship management, and identifies best practices in IT outsourcing.	Case study	None	None	√	√	√		√	√	√	√	√	
(Kern et al. 2002a)	Provides an overview and guidelines of the third wave of netsourcing practices.	NA	None	None	√	√		√	√	√	√	√	√	

Appendix 2: IT Outsourcing Practices Survey (Client)

Thank you for your participation in this study. Please note that all data are completely confidential and will be reported only in aggregate form. We will be glad to share a report of findings upon completion.

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1. Please specify your business affiliation:
   _____ and job title:
   _____.

The following questions focus on general information about your firm. If your parent company is a multi-divisional organization, please answer the following questions at the level of strategic unit where the IT outsourcing practices were actually conducted.

2. Please specify the industry sector that your firm belongs to:

Financial services	☐
Manufacturing and distribution	☐
Consumer services and retail	☐
Information & communications technology	☐
Healthcare	☐
Public utility	☐
Media industries	☐
Education	☐
Transportation & logistics	☐
Other. Please specify:_____	☐

3. Please specify the number of employees in your firm: _____

4. What was the annual sales revenue of your firm in each of the past three fiscal years?
   2001: $_____; 2002: $_____; 2003: $_____

5. Please specify the annual IT budget of your firm in each of the past three fiscal years:
   2001: $_____; 2002: $_____; 2003: $_____

6. Approximately, how many internal IT employees does your firm have? _____

7. Approximately, ___% of IT functions in our firm is outsourced.

8. The following statements are about your firm's outsourcing experience. Please indicate your level of agreement with each of the following.

Statements	Strongly Disagree Neutral Strongly Agree
Our firm has had extensive experience in IT outsourcing in the past 10 years.	1-----2-----3-----4-----5-----6-----7
Our firm has had interactions with various IT outsourcers in the past 10 years.	1-----2-----3-----4-----5-----6-----7
Senior management is always open to the option of outsourcing whenever it is needed.	1-----2-----3-----4-----5-----6-----7

The following statements are about the role of IT in your firm. Please indicate your level of agreement with each of the following.

Statements	Strongly Disagree	Neutral	Strongly Agree
IT supports operations and helps decision support and administrative functions.	1-----2-----3-----4-----5-----6-----7		
The IS group actively supports organizational strategies.	1-----2-----3-----4-----5-----6-----7		
The IS group and corporate management work together on applications that create competitive advantage.	1-----2-----3-----4-----5-----6-----7		
The role of IT is to replace human labor and enhance human productivity through automation.	1-----2-----3-----4-----5-----6-----7		
The role of IT is to provide information that helps employees gain better insights into their own activities.	1-----2-----3-----4-----5-----6-----7		
The role of IT is to provide information that allows a clear and organized management view of the state of the business.	1-----2-----3-----4-----5-----6-----7		
The role of IT is to fundamentally alter the industry or organization through new products or business strategies.	1-----2-----3-----4-----5-----6-----7		

Please answer the following questions with regard to <u>outsourcer ABC</u>. In the following questions, "the outsourcer" refers to ABC.

9. Please specify one IT outsourcing project in which ABC is involved: _____

10. Has your firm previously been engaged with ABC in any other interorganizational relationship?
    ___ No
    ___ Yes
    If yes, how long did the previous relationship with ABC last? ___ Years
    If this interorganizational relationship is ongoing, how long is it supposed to last? ___ Years

The following questions focus on the outsourcing <u>project XYZ</u> that your firm and <u>outsourcer ABC</u> are involved in.

11. The major impetus for the outsourcing decision of this project came from (Please check all that apply):
    ___ Top Management (senior business executives)
    ___ Functional Area Managers (VP of Finance, Marketing, etc.)
    ___ IT Management

12. The champion for this outsourcing project is (are) (Please check all that apply):
    ___ Top Management (senior business executives)
    ___ Functional Area Managers (VP of Finance, Marketing, etc.)
    ___ IT Management

13. Please choose one from the following contract types that best describes the contract for this outsourcing project.

The outsourcer's off-the-shelf contract	☐
A contract that contains special contractual clauses for service scope, service levels, measures of performance, and penalties for non-performance	☐
A contract that contains specified requirements for only the first few years and unspecified requirements afterwards	☐
Strategic alliance/partnership, a collaborative interorganizational relationship involving resource investment and risk sharing	☐

None of the above. Please specify:_____	☐

14. Please choose from the following according to the expected duration of the contract for this outsourcing project.
____< 4 years ____4-7 years ____ > 7 years;

15. How long has your firm been involved in this outsourcing relationship: __ Year(s) __ Month(s)

16. What percentage of your IT spending did this outsourcing project account for? ____%

17. What percentage of your IT functions is outsourced to the outsourcer? ____%

18. How many employees have been involved in the outsourcing relationship? _____

19. Please choose from the list below that the IT functions outsourced fall into. Please check all that apply.

Systems operations/data center	☐
Telecommunication/networks	☐
Applications development, implementation and maintenance	☐
Help desk/user support/information center	☐
IS planning and IS management	☐

20. The following statements are about characteristics of the outsourcer. Please indicate your level of agreement with each of the following statements.

	Strongly Disagree Neutral Strongly Agree
The outsourcer has strong technical skills.	1-----2-----3-----4-----5-----6-----7
The outsourcer provides outstanding services in a timely manner.	1-----2-----3-----4-----5-----6-----7
We value the outsourcer's specialization in the specific domain.	1-----2-----3-----4-----5-----6-----7
The outsourcer has extensive experience in our industry.	1-----2-----3-----4-----5-----6-----7
The outsourcer has a central and prominent status in the IT vendor community.	1-----2-----3-----4-----5-----6-----7
The outsourcer has broad associations with other firms that our firm can be referred to in time of need.	1-----2-----3-----4-----5-----6-----7
We and the outsourcer encourage each other to solve business problems.	1-----2-----3-----4-----5-----6-----7
We and the outsourcer solve most problems through mutual discussion.	1-----2-----3-----4-----5-----6-----7
We discuss our long-range planning with the outsourcer.	1-----2-----3-----4-----5-----6-----7
We reflect on the outsourcer's opinions about unexpected problems.	1-----2-----3-----4-----5-----6-----7

21. Based on your opinion, please indicate the level of importance of the following motives for IT outsourcing.

	Motives for IT Outsourcing	Not Important Neutral Very Important
A	Reduce IT cost	1-----2-----3-----4-----5-----6-----7
B	Focus on core competence	1-----2-----3-----4-----5-----6-----7
C	Gain knowledge from outsiders	1-----2-----3-----4-----5-----6-----7
D	Gain a technology edge over competitors	1-----2-----3-----4-----5-----6-----7
E	Improve technology or technical service	1-----2-----3-----4-----5-----6-----7
F	Gain access to special expertise	1-----2-----3-----4-----5-----6-----7

G	Reduce risk of unscheduled downtime	1-----2-----3-----4-----5-----6-----7
H	Speed up delivery	1-----2-----3-----4-----5-----6-----7
I	Relieve resource constraints	1-----2-----3-----4-----5-----6-----7
J	Provide access to new technologies	1-----2-----3-----4-----5-----6-----7
K	Eliminate a problem area/function	1-----2-----3-----4-----5-----6-----7
L	Reduction in IT staff	1-----2-----3-----4-----5-----6-----7
M	More profitable use of in-house IT talent	1-----2-----3-----4-----5-----6-----7
N	Other: Please specify: _____	1-----2-----3-----4-----5-----6-----7

Among the above motives, please use the **assigned alphabetical letters** to indicate the top **two (2)** most important motives for this outsourcing project: ____ and ____.

22. The following statements are about the interactions between your firm and the outsourcer. Please indicate your level of agreement with each of the following statements.

Statements	Strongly Disagree Neutral Strongly Agree
We maintain close relationships.	1-----2-----3-----4-----5-----6-----7
There is close, personal interaction between our firm and the outsourcer at multiple levels.	1-----2-----3-----4-----5-----6-----7
The relationship between our firm and the outsourcer is characterized by mutual respect at multiple levels.	1-----2-----3-----4-----5-----6-----7
The relationship between our firm and the outsourcer is characterized by personal friendship at multiple levels.	1-----2-----3-----4-----5-----6-----7

23. The following statements are about the relationship between your firm and the outsourcer. "We" or "us" refer to "your firm and the outsourcer". Please indicate your level of agreement with each of the following statements.

Statements	Strongly Disagree Neutral Strongly Agree
We hold mutual expectations about the outsourcer's responsibilities that go beyond what was specified in our formal agreements.	1-----2-----3-----4-----5-----6-----7
We expect that conflicts would be resolved fairly, even if no guidelines are given by our formal agreements.	1-----2-----3-----4-----5-----6-----7
We understand and accept that there are performance goals for the outsourcer's work even though not specified in our formal agreements.	1-----2-----3-----4-----5-----6-----7
When an unexpected situation arises, we have a mutual understanding that a win-win situation will be found, even if it contradicts our formal agreements.	1-----2-----3-----4-----5-----6-----7
We expect to share useful information to an extent beyond what is required by our formal agreements.	1-----2-----3-----4-----5-----6-----7
We hold mutual expectations that each would be flexible and responsive to requests by the other, even if not obliged by our formal agreements.	1-----2-----3-----4-----5-----6-----7
We understand that problems arising during the relationship will be solved jointly through communication and cooperation rather than reference to our formal agreements.	1-----2-----3-----4-----5-----6-----7
We understand that each will adjust to changing circumstances, even if not bound to change by formal agreements.	1-----2-----3-----4-----5-----6-----7

24. The following statements are about your firm's vision and domain of expertise. "Both parties" refer to "your firm and the outsourcer". Please indicate your level of agreement with each of the following.

Statements	Strongly Disagree Neutral Strongly Agree
The outsourcer shares the same ambition and vision as us.	1-----2-----3-----4-----5-----6-----7
Our people are enthusiastic about pursuing the collective goals and missions of our relationship with the outsourcer.	1-----2-----3-----4-----5-----6-----7
Our goals and objectives for this outsourcing relationship are shared by the outsourcer.	1-----2-----3-----4-----5-----6-----7
The outsourcer understands our firm's strategy and needs.	1-----2-----3-----4-----5-----6-----7
Employees of both parties have positive attitudes toward a cooperative relationship.	1-----2-----3-----4-----5-----6-----7
Our firm and the outsourcer tend to agree on how to make the relationship work.	1-----2-----3-----4-----5-----6-----7
Most employees of our firm have prior personal experience with the type of work the outsourcer performed for us.	1-----2-----3-----4-----5-----6-----7
The outsourcer's work is very similar to work regularly done throughout our firm.	1-----2-----3-----4-----5-----6-----7
Employees of our firm could have easily learned the skills needed to perform the outsourcer's job.	1-----2-----3-----4-----5-----6-----7
Our employees need the same background as the outsourcer's people to communicate effectively with them	1-----2-----3-----4-----5-----6-----7

25. Please indicate the level of your agreement with each of the following statements. As a result of our relationship with the outsourcer, …

Statements	Strongly Disagree Neutral Strongly Agree
We have learned or acquired some new or important information from the partner.	1-----2-----3-----4-----5-----6-----7
We have learned or acquired some critical capability or skill from the partner.	1-----2-----3-----4-----5-----6-----7
This alliance has helped us enhance our existing capabilities/skills.	1-----2-----3-----4-----5-----6-----7
We have obtained knowledge about various types of technologies available in the market.	1-----2-----3-----4-----5-----6-----7
We have obtained knowledge about various types of IT application.	1-----2-----3-----4-----5-----6-----7
We have learned about how a specific type of information technology works.	1-----2-----3-----4-----5-----6-----7
We have learned about how to apply a specific type of information technology to the business processes.	1-----2-----3-----4-----5-----6-----7
We have learned about business practices in the industry.	1-----2-----3-----4-----5-----6-----7
We have learned about why a change in our business operations/processes can help us compete with our rivals.	1-----2-----3-----4-----5-----6-----7
We have learned about factors to be considered when choosing the outsourcer.	1-----2-----3-----4-----5-----6-----7
We have learned knowledge about how to manage interorganizational relationships with an outsourcer.	1-----2-----3-----4-----5-----6-----7
We have learned about why interorganizational relationships can be valuable to our firm.	1-----2-----3-----4-----5-----6-----7

26. The following statements are about your firm's goals for outsourcing. Please indicate your level of agreement with each of the following statements.

Statements	Strongly Disagree	Neutral	Strongly Agree
Knowledge transfer is one of the benefits that we expected to gain through the outsourcing relationship.	1-----2-----3-----4-----5-----6-----7		
Aside from our goals and objectives, learning from the outsourcer is a potential outcome that we expect.	1-----2-----3-----4-----5-----6-----7		
We consider the relationship with the outsourcer as an opportunity to learn.	1-----2-----3-----4-----5-----6-----7		

27. The following statements are about general capabilities within your organization. Please indicate your level of agreement with each of the following statements.

Statements	Strongly Disagree	Neutral	Strongly Agree
Employees of our firm are proficient at combining and exchanging ideas to solve problems or create opportunities.	1-----2-----3-----4-----5-----6-----7		
Employees of our firm have learned to effectively pool their ideas and knowledge.	1-----2-----3-----4-----5-----6-----7		
Our firm has the ability to lay down rules, procedures, and instructions in formal documents to integrate knowledge.	1-----2-----3-----4-----5-----6-----7		
Our firm has the ability to use lateral ways of coordination to integrate knowledge.	1-----2-----3-----4-----5-----6-----7		
In general, our firm has the capability of knowledge assimilation.	1-----2-----3-----4-----5-----6-----7		
In general, our firm has the capability of knowledge application to various business areas.	1-----2-----3-----4-----5-----6-----7		

28. Please circle one number in each row according to your agreement with each of the following statements. As a result of participating in this outsourcing relationship, our firm has achieved (or expects to achieve):

Statements	Strongly Disagree	Neutral	Strongly Agree
We have been able to refocus on core business.	1-----2-----3-----4-----5-----6-----7		
We have increased access to skilled personnel.	1-----2-----3-----4-----5-----6-----7		
We have enhanced economies of scale in human resources.	1-----2-----3-----4-----5-----6-----7		
We have enhanced economies of scale in technological resources.	1-----2-----3-----4-----5-----6-----7		
We have increased control of IS expenses.	1-----2-----3-----4-----5-----6-----7		
We have reduced risks of technological obsolescence.	1-----2-----3-----4-----5-----6-----7		
We are satisfied with our overall benefits from outsourcing.	1-----2-----3-----4-----5-----6-----7		
We have improved production or service volumes.	1-----2-----3-----4-----5-----6-----7		
We have enhanced operating flexibility.	1-----2-----3-----4-----5-----6-----7		
We have improved production of labor.	1-----2-----3-----4-----5-----6-----7		
We have reduced cost of tailoring products or services.	1-----2-----3-----4-----5-----6-----7		
We have enhanced product/service value through increased IT embeddedness.	1-----2-----3-----4-----5-----6-----7		
We have decreased cost of designing products/services.	1-----2-----3-----4-----5-----6-----7		
We have reduced time to market for new/products/services.	1-----2-----3-----4-----5-----6-----7		
We have enhanced product/service quality.	1-----2-----3-----4-----5-----6-----7		
We have achieved support for product/service innovation.	1-----2-----3-----4-----5-----6-----7		
We have achieved the ability to identify new market trends.	1-----2-----3-----4-----5-----6-----7		
We have achieved increased ability to anticipate customer needs.	1-----2-----3-----4-----5-----6-----7		

THANK YOU FOR YOUR PARTICIPATION!

Appendix 3: IT Outsourcing Practices Survey (Vendor)

Thank you for your participation in this study. Please note that all data are completely confidential and will be reported only in aggregate form. We will be glad to share a report of findings upon completion.

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1. Please specify your business affiliation:
   _____ and job title:
   _____.

Please indicate one IT outsourcing project that you have been working on: _____, and the client firm in this project: _____.

Please answer the following questions based on the relationship between your firm and your client firm in the above mentioned IT outsourcing project.

2. The following statements are about the characteristics of the relationship between your firm and the client firm. Please indicate your level of agreement with each of the following statements.

Statements	Strongly Disagree — Neutral — Strongly Agree
We and the client firm encourage each other to solve business problems.	1-----2-----3-----4-----5-----6-----7
We and the client firm solve most exceptional problems through mutual discussion.	1-----2-----3-----4-----5-----6-----7
The client firm discusses their long-range planning with us.	1-----2-----3-----4-----5-----6-----7
The client firm reflects on our opinions about unexpected problems.	1-----2-----3-----4-----5-----6-----7
We maintain close relationships with the client firm.	1-----2-----3-----4-----5-----6-----7
There is close, personal interaction between our firm and the client firm at multiple levels.	1-----2-----3-----4-----5-----6-----7
The relationship between our firm and the client firm is characterized by mutual respect at multiple levels.	1-----2-----3-----4-----5-----6-----7
The relationship between our firm and the client firm is characterized by personal friendship at multiple levels.	1-----2-----3-----4-----5-----6-----7

3. The following statements are about the relationship between your firm and the client firm. "We" or "us" refer to "your firm and the client firm". Please indicate your level of agreement with each of the following statements.

Statements	Strongly Disagree Neutral Strongly Agree
We hold mutual expectations about our firm's responsibilities that go beyond what was specified in our formal agreements.	1-----2-----3-----4-----5-----6-----7
We expect that conflicts would be resolved fairly, even if no guidelines are given by our formal agreements.	1-----2-----3-----4-----5-----6-----7
We understand and accept that there are performance goals for our firm's work even though not specified in our formal agreements.	1-----2-----3-----4-----5-----6-----7
When an unexpected situation arises, we have a mutual understanding that a win-win situation will be found, even if it contradicts our formal agreements.	1-----2-----3-----4-----5-----6-----7
We expect to share useful information to an extent beyond what is required by our formal agreements.	1-----2-----3-----4-----5-----6-----7
We hold mutual expectations that each would be flexible and responsive to requests by the other, even if not obliged by our formal agreements.	1-----2-----3-----4-----5-----6-----7
We understand that problems arising during the relationship will be solved jointly through communication and cooperation rather than reference to our formal agreements.	1-----2-----3-----4-----5-----6-----7
We understand that each will adjust to changing circumstances, even if not bound to change by formal agreements.	1-----2-----3-----4-----5-----6-----7

4. The following statements are about your firm's vision and domain of expertise. "Both parties" refer to "your firm and the client firm". Please indicate your level of agreement with each of the following.

Statements	Strongly Disagree Neutral Strongly Agree
We share the same ambition and vision as the client firm.	1-----2-----3-----4-----5-----6-----7
Our people are enthusiastic about pursuing the collective goals and missions of our relationship with the client firm.	1-----2-----3-----4-----5-----6-----7
We share our goals and objectives for this outsourcing relationship with the client.	1-----2-----3-----4-----5-----6-----7
We understand the client firm's strategy and needs.	1-----2-----3-----4-----5-----6-----7
Employees of both parties have positive attitudes toward a cooperative relationship.	1-----2-----3-----4-----5-----6-----7
Our firm and the client firm tend to agree on how to make the relationship work.	1-----2-----3-----4-----5-----6-----7
Most employees of client firm have prior personal experience with the type of work we performed for them.	1-----2-----3-----4-----5-----6-----7
The service we provide is very similar to the work regularly done throughout the client firm.	1-----2-----3-----4-----5-----6-----7
Employees of the client firm could have easily learned the skills needed to perform the service that we provide.	1-----2-----3-----4-----5-----6-----7
The employees of the client firm need the same background as our employees to communicate effectively.	1-----2-----3-----4-----5-----6-----7

THANK YOU FOR YOUR PARTICIPATION!

Appendix 4: Application for Initial Review of Research Using Human Subjects

1. Abstract

The study attempts to examine the strategic partnerships in transformational IT outsourcing projects. Notwithstanding the ubiquity of IT outsourcing in today's organizations, theoretical understanding of this phenomenon has been limited mainly to the *economic* or *strategic* aspects of it. This study adopts a *social* perspective to examine the IT outsourcing phenomenon and focuses on outsourcing projects that are relationship-oriented rather than transaction-oriented. By incorporating the knowledge based view (KBV) of the firm and the concept of social capital, I attempt to explain how IT outsourcing relationships generate value for organizations. I argue that IT outsourcing partnerships constitute a form of social capital for the firm that chooses to outsource, which facilitates knowledge exchange and transfer. The increased knowledge stock as a result of knowledge exchange and transfer, in turn, forms the foundation for IT value, which is manifested as IT capabilities and IT-enabled innovation. This study seeks to find evidence that helps further our understanding of the IT outsourcing phenomenon through an alternative theoretical lens, and emphasizes the non-economic value that organizations may garner through IT outsourcing partnerships. Participation of human subjects in this study is based solely on their own willingness to do so.

2. Subject Selection

The level of analysis of this study is at the firm level. Each pair of firms (the focal firm and its partner) constitutes a data point. Several key informants from each dyadic relationship will be the potential respondents of the study. The subjects of this study include the IT executive, the project manager, and the business executive of the focal firm, and the project manager of the partner firm. We will enlist the subjects through the contact with firms that provide IT outsourcing services (IT service providers). If an IT service provider is willing to participate in the study by providing a list of its client firms, we will further contact the potential respondents of each client firm. Their participation in the study depends solely on their willingness to provide relevant information to the researchers. We do not plan to advertise for subjects.

The subject selection will be only based on their job responsibilities and involvement in the IT outsourcing projects. We will send a letter to the potential subjects to solicit participation, which is presented at the end of this document. We believe that each potential respondents of the study can provide information pertinent to the research questions. For example, project managers of the focal firm and the partner firm should have detailed information about the IT outsourcing project, such as how the relationship between the focal firm and the partner firm works and what kind of knowledge has been transferred. The IT executive of the focal firm oversees the IT functions at the organizational level, therefore can provide information such as the general role of IT within the firm and the vision of IT. The business executive of the focal firm can provide information about how IT is applied to business functions.

Subjects will not be selected based on any other characteristics, such as age, gender, race, ethnic origin, religion, or any other social or economic qualifications.

3. Procedures

This study is to perform an empirical test of the proposed research model with a larger sample using statistical methods. We will use both previously tested and new operational measures of the research constructs in the research model. We will conduct a survey study with a larger sample of firms that are involved in IT outsourcing projects. The level of data collection is at the level of the focal firm-IT partner dyad. A sample questionnaire is attached as Appendix 2. As mentioned above, the ideal respondents to the questionnaire are: the IT executive, the project manager, and the business executive of the focal firm, and the project manager of the partner. A copy of the questionnaire along with a cover letter will be sent to the potential respondents by mail. A second copy of the questionnaire and a reminder will be mailed out to the potential respondents about 4 weeks after the first questionnaire is sent out. After getting the questionnaires back, I will pool responses to thequestionnaire from various data sources within a particular firm to form a single data point for the focal firm. Responses to the questionnaire from data sources in the partner firm will be used as a cross-reference to its counterpart at the local firm. Because responses from multiple data sources will be pooled and aggregated to form a single data point, a modest sample size, 50 to 70 dyadic relationships, is expected. We will use structural equation modeling and regression-based techniques to analyze the data set.

4. Risks and Benefits

Although it is expected to take about 30-45 minutes for a respondent to fill out the questionnaire, the study will not cause any risk to the respondents. The respondents will need to retrieve some information that they are familiar with from their memories, and they always have the freedom of not answering a particular question.

This study is not designed to benefit the individual respondents. However, results of the study, at an aggregated level, will provide a detailed overview of the relationship between each partnering dyad and how each participating IT service provider has helped its clients in value generation. Additionally, results of the study will help further our understanding of the phenomenon through an alternative theoretical lens.

5. Confidentiality

We will keep any information about the participating firms collected from the questionnaire confidential. The data collected will be stored in a secured place where only the principal investigator and the student investigator have access. Data handling and analysis will be performed only by the principal investigator and the student investigator. We will not release any specific information about the participating firms to a third party. Results of the study will only be reported in an aggregated and anonymous fashion. By the end of the data analysis, the data will be destroyed without any further revelation to a third party.

6. Information and Consent Forms

We will provide the following information to the subjects about this study. (1) the purpose of the study, (2) procedures of the study, (3) confidentiality of information, (4) benefits, risks, freedom to withdraw, and ability to ask questions, and (5) contact information of investigators and contact information of Institutional Review Board. The consent form that we propose to utilize is attached in this document.

7. Conflict of Interest

This investigation does not involve potential conflict of interest. There is no significant financial interest that would constitute a potential conflict of interest in the conduct or reporting of the proposed research.

8. HIPAA Compliance

We do not plan to use any protected health information for this study.

9. Solicitation for Participation

May 10, 2004

Dear Sir/Madam,

We would like to invite you to participate in a research project that focuses on strategic IT partnerships in transformational outsourcing projects. The IT outsourcing service provider of your firm, XYZ, is very supportive in helping us conduct this study. Attached is a questionnaire with questions regarding your own perspectives about the particular IT outsourcing project in which both your firm and XYZ are involved Your responses to the questionnaire will help the investigators better understand the IT outsourcing phenomenon and help XYZ provide improved services. It will take 30-45 minutes to complete the questionnaire. You may fill it out at your convenience and then send it back to the investigators in the pre-stamped envelope. Your participation and cooperation will be highly appreciated.

Sincerely Yours,

Ritu Agarwal

Fei Ye

Appendix 5: Measurement Scales

Construct	Items
Partner Resource Endowment	***RSENDOW1***: The outsourcer has strong technical skills.
	RESNDOW2: The outsourcer provides outstanding services in a timely manner.
	RSENDOW3*: We value the outsourcer's specialization in the specific domain.
	RSENDOW4: The outsourcer has extensive experience in our industry.
	RSENDOW5: The outsourcer has a central and prominent status in the IT vendor community.
	RSENDOW6*: The outsourcer has broad associations with other firms that our firm can be referred to in time of need.
Information Reciprocity (Client)	***RECIP1****: We and the outsourcer encourage each other to solve business problems.
	RECIP2*: We and the outsourcer solve most problems through mutual discussion.
	RECIP3*: We discuss our long-range planning with the outsourcer.
	RECIP4*: We reflect on the outsourcer's opinions about unexpected problems.
Information Reciprocity (Vendor)	***VRECIP1****: We and the client firm encourage each other to solve business problems.
	VRECIP2*: We and the client firm solve most exceptional problems through mutual discussion.
	VRECIP3*: The client firm discusses their long-range planning with us.
	VRECIP4*: The client firm reflects on our opinions about unexpected problems.
Social Interaction (Client)	***RELAT1****: We maintain close relationships.
	RELAT2: There is close, personal interaction between our firm and the outsourcer at multiple levels.
	RELAT3: The relationship between our firm and the outsourcer is characterized by mutual respect at multiple levels
	RELAT4: The relationship between our firm and the outsourcer is characterized by trust at multiple levels.
	RELAT5: The relationship between our firm and the outsourcer is characterized by personal friendship at multiple levels.
Social Interaction (Vendor)	***VRELAT1****: We maintain close relationships with the client firm.
	VRELAT2: There is close, personal interaction between our firm and the client firm at multiple levels.
	VRELAT3: The relationship between our firm and the client firm is characterized by mutual respect at multiple levels.
	VRELAT4: The relationship between our firm and the client firm is characterized by trust at multiple levels.
	VRELAT5: The relationship between our firm and the client firm is characterized by personal friendship at multiple levels.

Construct	Items
Trust (Client)	***TRUST1****: We hold mutual expectations about the outsourcer's responsibilities that go beyond what was specified in our formal agreements. ***TRUST2****: We expect that conflicts would be resolved fairly, even if no guidelines are given by our formal agreements. ***TRUST3****: We understand and accept that there are performance goals for the outsourcer's work even though not specified in our formal agreements. ***TRUST4****: When an unexpected situation arises, we have a mutual understanding that a win-win situation will be found, even if it contradicts our formal agreements. ***TRUST5***: We hold mutual expectations that each would be flexible and responsive to requests by the other, even if not obliged by our formal agreements. ***TRUST6***: We understand that problems arising during the relationship will be solved jointly through communication and cooperation rather than reference to our formal agreements. ***TRUST7***: We understand that each will adjust to changing circumstances, even if not bound to change by formal agreements. ***TRUST8***: We expect to share useful information to an extent beyond what is required by our formal agreements.
Trust (Vendor)	***VTRUST1****: We hold mutual expectations about our firm's responsibilities that go beyond what was specified in our formal agreements. ***VTRUST2****: We expect that conflicts would be resolved fairly, even if no guidelines are given by our formal agreements. ***VTRUST3****: We understand and accept that there are performance goals for our firm's work even though not specified in our formal agreements. ***VTRUST4****: When an unexpected situation arises, we have a mutual understanding that a win-win situation will be found, even if it contradicts our formal agreements. ***VTRUST5***: We hold mutual expectations that each would be flexible and responsive to requests by the other, even if not obliged by our formal agreements. ***VTRUST6***: We understand that problems arising during the relationship will be solved jointly through communication and cooperation rather than reference to our formal agreements. ***VTRUST7***: We understand that each will adjust to changing circumstances, even if not bound to change by formal agreements. ***VTRUST8***: We expect to share useful information to an extent beyond what is required by our formal agreements.
Shared Vision (Client)	***VISION1***: The outsourcer shares the same ambition and vision as us. ***VISION2***: Our people are enthusiastic about pursuing the collective goals and missions of our relationship with the outsourcer. ***VISION3***: Our goals and objectives for this outsourcing relationship are shared by the outsourcer. ***VISION4****: The outsourcer understands our firm's strategy and needs. ***VISION5****: Employees of both parties have positive attitudes toward a cooperative relationship. ***VISION6****: Our firm and the outsourcer tend to agree on how to make the relationship work.

Construct	Items
Shared Vision (Vendor)	***VVISION1***: We share the same ambition and vision as the client firm. ***VVISION2***: Our people are enthusiastic about pursuing the collective goals and missions of our relationship with the client firm. ***VVISION3***: We share our goals and objectives for this outsourcing relationship with the client. ***VVISION4****: We understand the client firm's strategy and needs. ***VVISION5****: Employees of both parties have positive attitudes toward a cooperative relationship. ***VVISION6****: Our firm and the client firm tend to agree on how to make the relationship work.
Shared Cognition (Client)	***COGN1***: Most employees of our firm have prior personal experience with the type of work the outsourcer performed for us. ***COGN2***: The outsourcer's work is very similar to work regularly done throughout our firm. ***COGN3***: Employees of our firm could have easily learned the skills needed to perform the outsourcer's job. ***COGN4****: Our employees need the same background as the outsourcer's people to communicate effectively with them.
Shared Cognition (Vendor)	***VCOGN1***: Most employees of client firm have prior personal experience with the type of work we performed for them. ***VCOGN2***: The service we provide is very similar to the work regularly done throughout the client firm. ***VCOGN3***: Employees of the client firm could have easily learned the skills needed to perform the service that we provide. ***VCOGN4****: The employees of the client firm need the same background as our employees to communicate effectively.
Learning Intent	***LI1***: Knowledge transfer is one of the benefits that we expected to gain through the outsourcing relationship. ***LI2***: Aside from our goals and objectives, learning from the outsourcer is a potential outcome that we expect. ***LI3***: We consider the relationship with the outsourcer as an opportunity to learn.
Knowledge Acquisition	***TKNOW1****: We have learned or acquired some new or important information from the partner. ***TKNOW2****: We have learned or acquired some critical capability or skill from the partner. ***TKNOW3****: This alliance has helped us enhance our existing capabilities/skills. ***TKNOW4***: We have obtained knowledge about various types of technologies available in the market. ***TKNOW5***: We have obtained knowledge about various types of IT application. ***TKNOW6***: We have learned about how a specific type of information technology works. ***BKNOW1***: We have learned about how to apply a specific type of information technology to the business processes ***BKNOW2***: We have learned about business practices in the industry. ***BKNOW3***: We have learned about why a change in our business operations/processes can help us compete with our rivals. ***NKNOW1****: We have learned about factors to be considered when choosing the outsourcer. ***NKNOW2****: We have learned knowledge about how to manage interorganizational relationships with an outsourcer. ***NKNOW3***: We have learned about why interorganizational relationships can be valuable to our firm.

Construct	Items
Combinative Capability	***COMBCAP1***: Employees of our firm are proficient at combining and exchanging ideas to solve problems or create opportunities. ***COMBCAP2***: Employees of our firm have learned to effectively pool their ideas and knowledge. ***COMBCAP3***: Our firm has the ability to lay down rules, procedures, and instructions in formal documents to integrate knowledge. ***COMBCAP4***: Our firm has the ability to use lateral ways of coordination to integrate knowledge. ***COMBCAP5****: In general, our firm has the capability of knowledge assimilation. ***COMBCAP6***: In general, our firm has the capability of knowledge application to various business areas.
Outsourcing Success	***SUC1****: We have been able to refocus on core business. ***SUC2****: We have increased access to skilled personnel. ***SUC3***: We have enhanced economies of scale in human resources. ***SUC4***: We have enhanced economies of scale in technological resources. ***SUC5****: We have increased control of IS expenses. ***SUC6****: We have reduced risks of technological obsolescence. ***SUC7****: We are satisfied with our overall benefits from outsourcing. ***SUC8***: We have improved production or service volumes. ***SUC9****: We have enhanced operating flexibility. ***SUC10****: We have improved production of labor. ***SUC11***: We have reduced cost of tailoring products or services. ***SUC12***: We have enhanced product/service value through increased IT embeddedness. ***SUC13***: We have decreased cost of designing products/services. ***SUC14***: We have reduced time to market for new/products/services. ***SUC15***: We have enhanced product/service quality. ***SUC16***: We have achieved support for product/service innovation. ***SUC17***: We have achieved the ability to identify new market trends. ***SUC18***: We have achieved increased ability to anticipate customer needs.
IT Outsourcing Experience	***OSEXP1***: Our firm has had extensive experience in IT outsourcing in the past 10 years. ***OSEXP2***: Our firm has had interactions with various IT outsourcers in the past 10 years. ***OSEXP3****: Senior management is always open to the option of outsourcing whenever it is needed.

Construct	Items
Role of IT	***ITROLE1***: IT supports operations and helps decision support and administrative functions. ***ITROLE2***: The IS group actively supports organizational strategies. ***ITROLE3***: The IS group and corporate management work together on applications that create competitive advantage. ***ITROLE4****: The role of IT is to replace human labor and enhance human productivity through automation. ***ITROLE5****: The role of IT is to provide information that helps employees gain better insights into their own activities. ***ITROLE6***: The role of IT is to provide information that allows a clear and organized management view of the state of the business. ***ITROLE7***: The role of IT is to fundamentally alter the industry or organization through new products or business strategies.

Appendix 6: Path Analyses

Path analysis is an extension of the regression model, which examines the causal relationships using regression. I use path analysis to decompose the effect of each independent variable on the dependent variable. Specifically, effect decomposition can help compare the proposed research model and the alternative model, testing the significance of the effect of the mediating variable: *knowledge acquisition*.

Path analysis incorporates several assumptions (Loehlin 1998). First, relationships in the model are linear, additive, and causal. Curvilinear, multiplicative, and interaction relationships should be excluded. Therefore, the models I use to perform path analyses contain main effects only, and the interaction effects of *learning intent* and *combinative capabilities* are excluded. Second, the path model is recursive and contains only one-way causal flow. Third, the residuals are uncorrelated with all other variables or residuals. Fourth, the variables used as predictors are measured without error. Based on these assumptions, I constructed the proposed research model with the mediating variable *knowledge acquisition* and the alternative model. In both models, I assume that each social capital variable is correlated with others, shown as double-head arrows in the model.

In path analysis, each correlation can be decomposed into four effects. The **direct effect** is the path coefficient from one variable to the other without mediation. The **indirect effect** represents the sequence of paths that go through one or more intermediate variables. The **spurious effect** arises when variables under study share a common cause. The **unanalyzed effect** is caused the causes of the variable are correlated. The sum of direct and indirect effects is the total causal part of the correlation between two variables, and the sum of the spurious and unanalyzed effects is the total non-causal part of the correlation between

two variables. I focus on only the causal part of the correlation between two variables in the path analyses.

I used the statistical software AMOS to perform path analysis, and use a Maximum Likelihood method for parameter estimation.

Client Sample

Figure 18 can be viewed as the alternative model superimposed on the simplified research model, where interaction effects are not accounted for. As a combination of two competing models, the model in Figure 18 can help decompose and compare different effects of correlations between the exogenous variables and the endogenous variables.

The results of path analysis are summarized in Table 26, in which the columns represent the exogenous variables and the rows represent the endogenous variables. All effects are expressed in standardized terms, independent of the measurement units of the variables. The results can be interpreted as: when there is one unit of increase in the exogenous variable a, there will be an x unit of increase (or decrease) in the endogenous variable b, where x is between 0 and 1. In Table 26, for each endogenous variable, the effect is decomposed in direct effect and indirect effect, and the total effect is the causal part of the correlation between the exogenous variable and the endogenous variable. For example, the total effect of *learning intent* on *knowledge acquisition* is the same as the direct effect of *learning intent* on *knowledge acquisition* because *learning intent* only has a direct, non-mediated relationship with *knowledge acquisition*. *Resource endowment* has two effects on *success in business operations*: a direct effect and an indirect effect through *knowledge acquisition*. The effect of *resource endowment* on *knowledge acquisition* through its correlation with other variables is beyond the consideration of the path analysis of this study.

Figure 18: Path Analysis –Client Sample

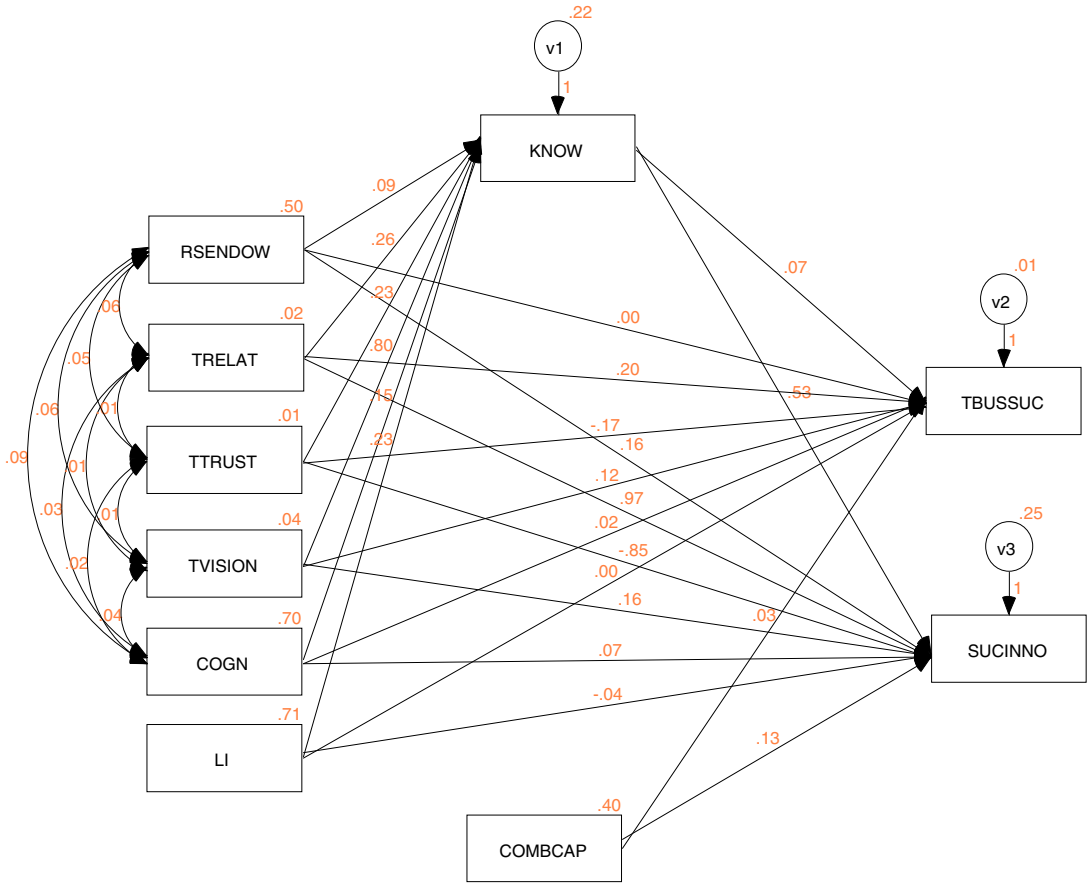


Table 26: Decomposition of Effects—Client Sample (N=151)

	Effects	Learning Intent	Shared Vision	Trust	Social Interaction	Shared Cognition	Resource Endowment	Combinative Capabilities	Knowledge Acquisition
Knowledge Acquisition	Total	.331	.264	.047	.062	.215	.105	.000	.000
	Direct	.331	.264	.047	.062	.215	.105	.000	.000
	Indirect	.000	.000	.000	.000	.000	.000	.000	.000
Success in Innovation	Total	.110	.170	-.131	.236	.193	.222	.126	.469
	Direct	-.045	.046	-.153	.206	.092	.172	.126	.469
	Indirect	.155	.124	.022	.029	.101	.049	.000	.000
Success in Business Operations	Total	.125	.267	-.146	.236	.219	.038	.162	.323
	Direct	.018	.181	-.161	.216	.149	.004	.162	.323
	Indirect	.107	.085	.015	.020	.069	.034	.000	.000

Table 27: Decomposition of Effects—Paired Sample (N=79)

	Effects	Learning Intent	Shared Vision	Trust	Social Interaction	Shared Cognition	Resource Endowment	Combinative Capabilities	Knowledge Acquisition
Knowledge Acquisition	Total	.457	-.112	-.092	.162	.199	.196	.000	.000
	Direct	.457	-.112	-.092	.162	.199	.196	.000	.000
	Indirect	.000	.000	.000	.000	.000	.000	.000	.000
Success in Innovation	Total	.224	-.098	-.049	.225	.210	.309	.281	.366
	Direct	.057	-.057	-.015	.165	.137	.237	.281	.366
	Indirect	.167	-.041	-.034	.059	.073	.072	.000	.000
Success in Business Operations	Total	.122	-.084	-.005	.096	.355	.044	.320	.137
	Direct	.059	-.069	.008	.074	.328	.017	.320	.137
	Indirect	.063	-.015	-.013	.022	.027	.027	.000	.000

Effect decomposition of the client sample shows that *knowledge acquisition* is more correlated with both *success in business operations* and *success in innovation* than any exogenous variable. A one-unit change in *knowledge acquisition* is associated with .323 unit change in *success in business operations* and .469 unit change in *success in innovation* in the same direction. This suggests that knowledge plays a more important role in business areas that are information-laden and knowledge-driven. *Combinative capabilities* have a higher correlation with *success in business operations* than with *success in innovation*. This implies that *combinative capabilities resource* may not be the most important antecedent of success, and other factors or interactions between *combinative capabilities* and other factors may have a stronger effect on successful outcomes.

In the proposed research model, one unit of change in *learning intent* will lead to .331 unit of change in *knowledge acquisition* in the same direction, indicating the impact of a firm's willingness to acquire knowledge on the learning outcomes. *Learning intent* correlates with both successful outcomes to a lesser extent. the effect decomposition of the correlation between *learning intent* and *success in business operations* suggests that *learning intent* has a stronger indirect effect (.107) on *success in business operations* through *knowledge acquisition* than the direct effect (.018). *Learning intent* has a negative correlation with *success in innovation* through the direct path, suggesting that higher *learning intent* does not guarantee successful outcomes such as it-enabled innovation. This negative correlation is cancelled out when the indirect effect is taken into account. *Learning intent* correlates with *success in innovation* through *knowledge acquisition* (.155), reassuring the significance of mediating effect of *knowledge acquisition* on the relationship between *learning intent* and *success in innovation*.

Partner resource endowment has a correlation of .105 with *knowledge acquisition*, indicating that a unit change in perceived *partner resource endowment* is associated with .105 unit of change in *knowledge acquisition*. However, it seems to be marginally correlated with *success in business operations* (.038), a correlation that can largely be explained by the mediating effect of *knowledge acquisition* (.034). Perceived *partner resource endowment* is highly correlated with *success in innovation* (.222), i.e., a unit change in perceived *partner resource endowment* will lead to .222 unit change in *success in innovation*. A large part of this correlation (.172) can be explained by the direct path between perceived *partner resource endowment* and *success in innovation*, while the rest is explained by the path through *knowledge acquisition*. This suggests that a well-established partner that processes the skills and expertise in the domain area is very important to the successful outcomes of a firm such as innovation. However, such successful outcomes may not be a result of active learning by the firm. Successful innovations can be achieved by the effort of the partner without much involvement and participation of the client firm.

Social interaction has a marginal correlation with *knowledge acquisition* (.062), but has high correlations with both *success in business operations* (.236) and *success in innovation* (.236), which suggests that the alternative model seems to be superior. The correlations between *social interaction* and both success outcomes can be largely explained by direct effects (.216 and .206), while the indirect effects through the intermediary *knowledge acquisition* (.020 and .029) seem insignificant. This suggests that *social interaction* alone does not necessarily lead to learning. It does, however, play a significant role in achieving successful outcomes in business operations and innovation. This means that successful outcomes can be obtained solely by the partner when the client firm's intentions and goals are effectively communicated to the partner

through frequent *social interactions*. The results suggest that *social interaction* is more important in relationship management than in *knowledge acquisition*, and it allows the client firm to achieve successful outcomes with minimal requirements of learning and involvement.

Trust seems to have a relatively marginal correlation with *knowledge acquisition* (.047). Surprisingly, it is negatively correlated with both *success in business operations* (-.161) and *success in innovation* (-.153), indicating an association between high levels of trust and high failure rates in business operations and innovations. The indirect effects through *knowledge acquisition* are both positive (.015 and .022) and help reduce the negative impact of trust on success outcomes, but the total effects remain negative because of the small magnitudes of the indirect effects. The results suggest that trust may sometimes be hurtful to the client firm. High levels of trust may reduce the client firm's willingness to learn because it can rely too much on the partner to do everything. In addition, when the client firm trusts the partner and leaves all work to be done by the partner, its limited participation and involvement may result in unexpected outcomes due to the lack of supervision or performance evaluation.

Shared vision has a high correlation with *knowledge acquisition* (.264), i.e., a unit change in *shared vision* is associated with .264 unit change in *knowledge acquisition*. It can also explain both success outcomes—.267 for *success in business operations* and .170 for*success in innovation*. *Shared vision* has a stronger direct effect on *success in business operations* (.181) than an indirect effect through *knowledge acquisition* (.085). This suggests that successful outcomes may require higher level of *shared vision* than *knowledge acquisition* for more operational-oriented business tasks, but higher levels of knowledge and learning for tasks such as innovation, which are more information- and knowledge-intensive.

Shared cognition has a relatively high correlation with *knowledge acquisition* (.215). Similar to *shared vision*, its impact on the success outcomes can be explained differently according to the nature of tasks involved. The total effect of *shared cognition* on *success in business operations* (.219) can be broken down to a larger direct effect (.149) and a smaller indirect effect (.069) through *knowledge acquisition*, indicating that knowledge is not the most critical antecedent of *success in business operations*. The total effect of *shared cognition* on *success in innovation* (.193) can be decomposed into a direct effect of .092 and an indirect effect of .101 through *knowledge acquisition*. This implies that for outcomes that require more knowledge related-input, *knowledge acquisition* plays a more important mediating role in the relationship between *shared cognition* and *success in innovation*.

To summarize, path analyses with the client sample confirms the importance of *knowledge acquisition* to both success outcomes. However, the exogenous variables appear to have different magnitude of correlations with *knowledge acquisition* and the success outcomes. Particularly, *shared vision*, *shared cognition*, and *learning intent* have higher correlations with *knowledge acquisition*, and show different direct and indirect effects for outcomes that require different levels of knowledge involvement. The results suggest that these are important factors to explain knowledge acquisition by the client firm and knowledge-related outcomes. *Partner resource endowment*, *social interaction*, and *trust*, on the other hand, seem to have stronger relationship with the success outcomes than with *knowledge acquisition*. *Socialinteraction* and *trust* have stronger direct effects than indirect effects on both success outcomes, suggesting that knowledge may not be the critical factor to explain their relationships with success.

Paired Sample

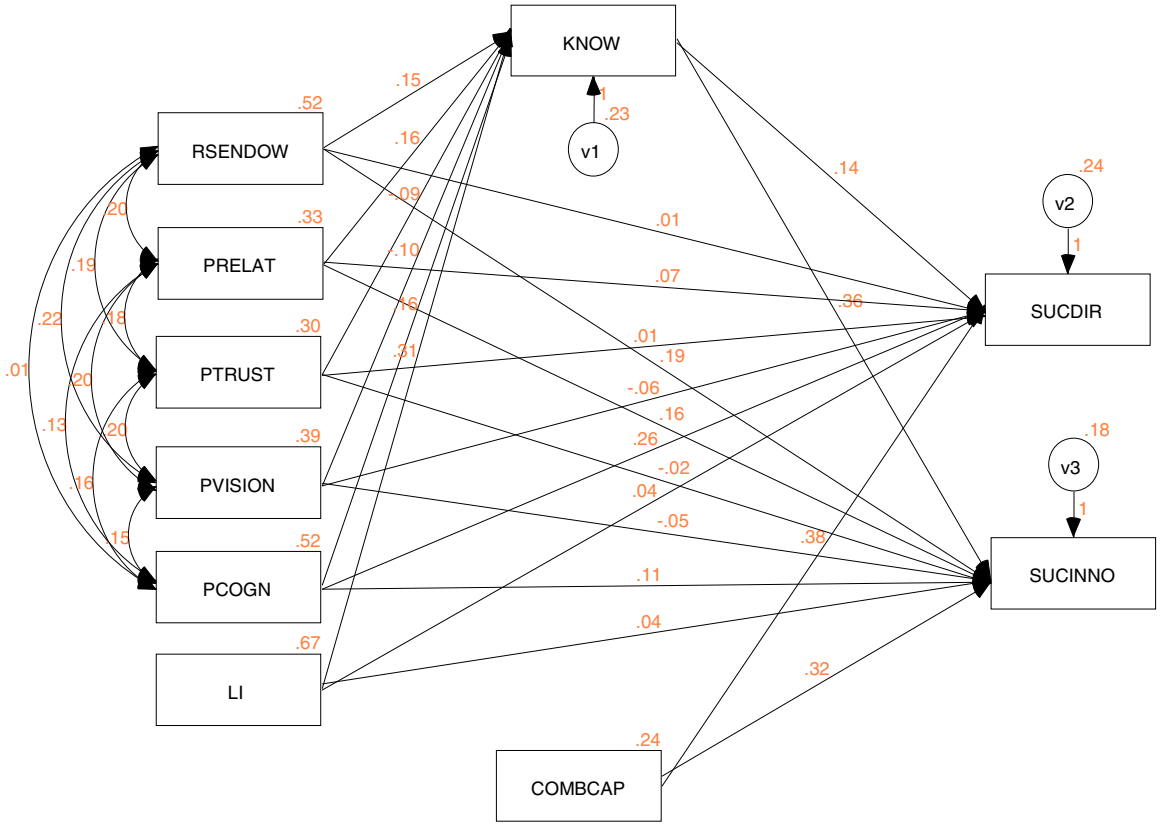
I also performed path analysis for the paired sample (N=79). With aggregate measurement scales based on the responses from both the client and the partner, path analysis results for the paired sample, summarized in Table 27, seem to be less conclusive. Figure 19 shows the path coefficients of the paired sample.

The correlations between *knowledge acquisition* and both success outcomes are consistent with the results for the client sample, suggesting a more important role of knowledge in *success in innovation* than in *success in business operation*. *Learning intent* is highly correlated with *knowledge acquisition* (.457), and has correlations with both success outcomes with lesser magnitudes. The correlations between *learning intent* and the success outcomes can be explained more by indirect effects through *knowledge acquisition* than by direct effects, confirming the important role of knowledge in success. *Combinative capabilities* seem to correlate more with *success in business operations* than with *success in innovation*, indicating that there might be some missing factor or interaction effects that can explain the successful outcomes.

Resource endowment and *social interaction* have high correlations with *success in innovation* but low correlations with *success in business operations*. They correlate with *success in innovation* more than they correlate with *knowledge acquisition*, and have strong direct effects on *success in innovation*. *Trust* and *shared vision* have negative correlations with all three endogenous variables. This finding is inconsistent with the results for the client sample and contradictory to the hypotheses. Similarly, *shared cognition* seems to be highly correlated with both *success in business operations* and *success in innovation*, with strong direct effects on both correlations, which is inconsistent with findings for the client sample. I suspect that these

contradictions may be a result of the aggregate scales for the exogenous variables. For the same matched pair, the client firm may have a view of the social capital constructs that is very different from the vendor's, resulting in low correlations between the responses from the client and the vendor for the same constructs. Aggregating the responses of the matched pair may correct the self-reporting bias to some extent, but may also have a diluting effect on the measurements, which may cause distortion or changes in magnitude of relationships.

Figure 19: Path Analysis—Paired Sample



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